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VETERINARY MEDICINE

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Veterinary Medicine

VOL. XVIII MARCH, 1923 No. 3

The Question of Horse Transportation in Large Cities

COMING from one so well qualified to speak on the subject, the address of Mr. George Dixon, ***frere aine,*** of the Arthur Dixon Transfer Company of Chicago, on horse transportation in large cities, deserves the attention of all thinking men in all walks of life. The Dixon Transfer Company is one of the oldest of its kind in the United States and at this time operates 500 horses and 25 motor trucks at heavy down-town traffic as well as a general cartage business about the city. It was started on a small scale in 1863 by the late Arthur Dixon, and has been a going and growing business ever since. Mr. Dixon has been active in the development of the company for forty years and since the death of his father five years ago, has officiated as president. It is doubtful if there is another man in this country who has had a wider experience in horse transportation, and who is as well qualified to speak in terms of dollars and cents as to the relative merits of horse-drawn and motor-drawn vehicles for cartage purposes. The address is characteristic of the man; a matter-of-fact talk to his colleagues; and free from the taint of exaggeration; an exposition of truth, calmly related; and a warning that carries weight.

Mr. George Dixon

Since VETERINARY MEDICINE has frequently drawn attention to the importance of stimulating horse breeding and of looking with anxiety upon the enormous wealth sacrificed in the purchase and operation of automotive vehicles, it is a decided privilege to be able to quote at length from this scholarly review of one of the big phases of the horse situation.

Confirms Evidence Presented by the Horse Association

"A great volume of literature has emanated from the Horse Association headquarters and has gone out to every corner of the United States, to do its work of presenting horse facts. I stand before you to confirm, personally, the evidence so able presented regarding horse use in cities, particularly in the cartage business.

Cartage a Part of the Country's Transportation System

"The cartage business is a part of the web of transportation lines which are spread over the country, with the great arteries of railroads, bringing their tonnage into the terminals to be distributed in detail by cartage companies of the various cities. Here in Chicago there are 236 trains each day, in and out of the city, carrying an average of 58 cars to a train and 3000 tons to each train-load to be distributed. And in addition there is the great volume of city hauling between local points.

"How this is handled is not a matter of personal choice. It must be viewed from the angle of the man who pays the bill. The merchants of this or any other city want cartage men to use horses and motors according to conditions best suited, and while no sane man will try to say that there is not a genuine place for motor trucks, many merchants never have forgotten to ask, 'Where is the limit of economy of the motor truck?' Since it has been demonstrated that on less than 20 miles a day horses have the exclusive field it is not a matter of choice but a matter of business management and fairness to the custom-

er to employ horse equipment in this zone. * * * The distance, the traffic and the commodity itself, must help to determine the mode of delivery. There is no motor truck in Chicago that will haul a five-ton load, straight or broken deliveries, within a radius of 12 miles as cheaply as a team. In the transfer business from railroad to railroad and from shipper to railroad where the delays in loading and unloading consume almost half of the time of the working day, is it not more economical to let a $1,500 team outfit stand idle than a $6,000 motor truck?

Recommends Short Coupled Horses

"In our own firm the average length of team loads runs from two to five miles. The size of the loads averages from two to seven tons. The horse we use, preferably, is a good, snappy, well-coupled block, with as faultless a conformation as possible. We like short coupled horses best, and insist on good feet and soundness of limb, deep chest, and a good body. Height 16.3, weighing 1,600 to 1,700 pounds. We prefer to buy them as five or six year olds, and like them to have a good disposition. Horses with bad dispositions are never desirable in the long run, although many of them are exceptionally hardy.

Average Price $250

"The price paid over a long series of years is approximately two hundred and fifty dollars, and the selling price has averaged about thirty-five dollars. The average length of service with us has been longer, probably, than other team owners, as we have followed the policy of rehabilitating disabled horses rather than to sell hastily, on first evidence of decline. This practice has seemed profitable as compared with that of many who salvage animals too soon, for fear they might depreciate in selling value. It does not cost much, in a going establishment, to set horses aside for a period of rest and recuperation, and to cure infirmities requiring only a brief period of disability.

Pays Tribute to Veterinary Science

"This point reminds me how much horse health and stable conditions have improved within the last decade. Veterinarians are different, nowadays, than they used to be. They must have high school education, and enter school on a parity with students of medical science and literature. They must go to school four years like all other men who secure college degrees. There has been great progress made in the actual treatment of horses in the last 15 years. The general use of bacterins, vaccines, and anti-toxins, has reduced the morbidity of contagious diseases. A better understanding of feeds and feeding has reduced colic, and the use of the stomach tube, has lowered the mortality from acute indigestion. Hygiene and sanitation, as now applied to horses and stables, assure the owner a minimum death rate. Veterinary surgery, as now practiced, is of such high order that horses afflicted with surgical conditions are generally promptly returned to work.

Serve Six to Seven Years

"The average length of service of our horses is six to seven years, and we have had a number of horses exceeding 20 years in active service. Horses of this kind are the result of careful buying, good care and conservative use.

Future of the Horse Not in Jeopardy

"The future of the horse is not in jeopardy, insofar as our experience can determine. It is a misapprehension that they are going to disappear from the streets of our cities, because, as a matter of fact, cost will enter more and more into the situation. The useful horse never got anywhere in business on sympathy. The sole and only thing which keeps him on the city's streets against all the propaganda for his extermination, is the fact of his economic advantages in the hauling of goods. The sound old principle of economics has taught us that there is a positive horse zone.

Horse Will Persist

"Conditions must determine the efficiency of motor or horse equipment. One kind of equipment supplements the other. They do not compete. Wherever complete transportation can be furnished by the motor truck more efficiently and cheaper than by the horse, the motor truck must be used. Wherever the horse drawn equipment is adequate and profitable—less expensive and as good as motor trucks—horse drawn equipment must be used. Where the best and cheapest service can be obtained by the horse and motor truck combined, the horse and the motor truck should co-operate in furnishing that service. Inside of ten years, people will be laughing at the folks of now-a-days for ever thinking of doing away with their horses. With all our newly devised methods of transportation, we are still calling for more horse equipment. We know we are in an age of greater inventions—we have had many, we shall have more. It is no wild prediction to say that within our lifetime, there will be aircraft carrying passengers and freight on regular schedule from New York to San Francisco, and even across the ocean.

Horses Dependable and Economical

"Nevertheless, the horse zone will undoubtedly persist. Horses are dependable, they are econom-

ical, they have a sense on regular delivery routes which cannot be equalled by mechanical devices of inventors. At present, the difference in operating cost, between a team and a five-ton capacity motor, is too great to permit argument regarding which equipment to use, if the job is within the working ability of the horse. In our company, the cost per horse per day is about $1.40, on the basis of 365 days per year. Reduced to a basis of "horse days", that is, days actually registered by horses working at remunerative employment, the cost is slightly higher, depending, of course, on how busy we keep our horses.

Chicago Horses High Grade

"At present, in the city of Chicago, there are in the neighborhood of 33,000 horses at work on the streets. A majority at least, more than half, are employed on one-horse vehicles, but the two-horse vehicles use nearly as many work animals. Most of these horses are well cared for and housed, although in certain sections of the city where peddlers and expressmen buy cheap, worn-out horses, the impression made is not at all favorable. Humane provisions are being provided for disabled horses, rather than selling them as discards. Many of the better firms are working along these lines. In the loop, however, in the cartage zones about terminals, warehouses and freight stations, the horses are of a high order, and well kept. Chicago owners are taking more and more pride in their horse equipment. Any who have seen the commercial vehicle classes at the International Horse Show can see how the horse is winning favor—kept in business because of economy and good, long service, and loved and cared for as a working part of the concern, because of his good disposition and faithful qualities.

Horse Differs from the Auto

"The horse is different from the auto in that it is a living thing. It was John Wesley who first said, "God's best gift to man, a horse," and in his biography it is stated that constant horseback riding kept his system in such perfect health, that his controlling mood was one of happiness, thankfulness and joy.

"Looking back over our forty years' use of horses as workers in the cartage business it has been a remarkable experience, which I wouldn't have missed for all the horse substitutes our civilization has to offer.

Cartage Business Standardized

"The trucking industry offers no apology. It has been standardized. It has become one of the essentials in the life and comfort of a great city.

"The team owner and the team driver are intensely interested in their work. Not only solicitous at all times to care for the business intrusted in a highly satisfactory manner but ever responsive and patriotic in the problems to be worked out in a city of three million people.

"Would that time permitted recital of the care and love manifested by drivers towards their horses, drivers with a record of continuous service running 20, 30, 40 and 50 years.

Side-Partner of Man for Centuries

"For hundreds and hundreds of years the horse has been doing the work which man alone could never have done. Long before trains, motor cars, and airplanes were dreamed of, these patient, powerful animals were the side partners of man. Neither Europe or America could ever have become so great had it not been for the help of the horse. The American inherits a sincere love for the horse. This love will last as long as life itself."

AVERAGE MILK CONSUMPTION PER CAPITA IN LARGE CITIES

Among the larger American cities, Boston shows the highest average milk consumption, and Louisville, Kentucky, the lowest. That of Boston is 1.01 pints per inhabitant and of Louisville, 0.45 pints. Los Angeles comes next with 0.97; then Denver with 0.93; Omaha people take 0.84; Detroit, 0.84; Portland (Ore.), 0.86; Seattle, 0.74; Chicago and New York, 0.70; Kansas City, 0.68; Washington, D. C., 0.61; San Francisco, 0.51.

Statistics obtained by the U. S. department of agriculture from 356 cities having a population of 32,000,000 show that the consumption of milk has increased 17% during the last decade.

These figures, although somewhat encouraging, are still too low for the physical welfare of the American people. One half pint of milk per day is a pretty low allowance. If these small portions were doled out under the "bread ticket" system of wartime fame we would cry for more with all of the agony of Oliver Twist, but living amid plenty we go on undernourishing ourselves in a state of supreme contentment, while the cattle interests drudge along trying to find a profitable outlet for their products.

In our work in behalf of the horse we must not entirely forget the cow, the domestic beast that preserves the physique of the existing generation and the fertility of the soil for future ones. We should try to increase the per capita consumption of all of her products, milk and meat, and quit broadcasting suspicions about the purely imaginary harm they might do.

Where We Belong in the World's Work

THE function of the veterinary profession is to protect the health of animals, to treat their ailments and to inspect the food produced from them, all for the benefit of agriculture. We say agriculture, because agriculture and animal husbandry are inseparable; one cannot permanently continue without the other; and we say "for the benefit of agriculture" because we inspect food products for the agricultural interests and not for the public health service. Until quite recent years our main occupation was that of attending to the ailments of animals for individuals, later we began to play the role of animal health experts especially in regards to the prevention and eradication of threatening plagues, and now in addition we must inspect the products of animals that are used for food.

—Courtesy of Hoard's Dairyman

This Film Does the Veterinary Profession, the Livestock Industry, and the People More Good than "Out of the Shadows".

Wherever veterinarians gather at the small local association meetings or at the state or national conventions, we are sure to hear a great deal of talk about the way the veterinary situation is changing. It is quite *l'ordre de jour* to say that we are in the process of transforming from horse doctors to veterinarians; that instead of voluntarily circumscribing our function to one domestic species we are extending it to all animals; and that the change came about because the horse lost some of its importance, as the others became more valuable. This is all quite true, in fact, it is the whole truth, for if the veterinary profession would live and advance in keeping with the needs of agriculture, it must do so through the versatility it can manifest at all times in bringing medical science to the rescue of the nation's wealth in livestock no matter in what species it is invested.

This is a big commission in view of the magnitude of the wealth involved; so big that once the masses comprehend what veterinary science has done, what it is doing today, and what would happen if it sank into mediocrity, the veterinarian will no longer feel in jeopardy from transient influences of the thoughtless. Agriculture will then cultivate a better acquaintance, and a closer and more friendly relation. It will have a sounder respect for our activity. It will seek in the interest of self-preservation, to encourage the study and proper exploitation of veterinary science.

But before teaching others who we are and what we are, we must first know ourselves. We must think in bigger terms of just what we are doing. It is not only necessary for us to study veterinary science; we must learn to exploit it in such a way as to get the support of those for which it is intended to benefit. When we say that we inspect food for the people, we are mistaken, for in the inspection of food like in our other activities, we are the employees of the agricultural interests. They employ us to assure themselves that the food products they sell are healthful and wholesome. That is, we put the stamp of purity on food for them, make foods more popular, and remove any taint of suspicion with which they might otherwise be associated. This we do for agriculture, and not for the public health service.

Ever since we have turned a great share of our attention to food-producing animals, we

have made the monumental blunder of trying to place ourselves in a position of greater importance by proclaiming, sometimes quite loudly, that we are *guardians of the public health.* Indirectly, we are, directly, we are not, and the sooner we get it into our heads that we

—Courtesy of Hoard's Dairyman

Another Way of Guarding the Public Health Is by Encouraging the Consumption of Butter

are guardians of the public health only to the extent that the agricultural interests want us to be, the sooner veterinary science will be adopted as its faithful ward, and the sooner it will carry us along harmoniously to its own objectives.

We Are Not Public-Health Servants

No veterinarian is a public health servant unless directly employed by a health department, and in that case he is more of a referee and adviser than an official health officer. He advises the farmer as to the wisdom of accrediting his products, and assures the health officer that these products are pure. It is no part of his work to venture opinions as to the effect such food products might have on the public health, because the veterinarian cannot qualify as an expert on diseases of human beings, and he as only vague, second-hand information about public-health problems. His knowledge is limited to the diseases of animals. His job is to help the agriculturist to produce healthy animals, and to dispose of their products for as many dollars and cents as possible.

We would not lift a finger to harm the horse interests, the swine interests, nor the dog interests. Our work in behalf of these has been along constructive lines. We believe in the horse, and although he breeds flies—disease-carrying flies—we have not been so short-sighted as to make much fuss about the harm these flies might do. The horse sometimes has glanders, and glanders can be transmitted to humans, but we do not publish the fact. The dog sometimes gets rabies and may bite and infect a human being, yet we have not been arraying ourselves with the dog baiters.

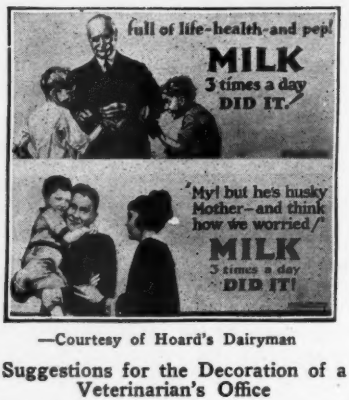
In the case of the cow, our attitude has been somewhat different. We have not hesitated to pronounce milk and other of her products as something for human beings to fear, and although the amount of harm we have done in this way is but a conjecture, it is unfortunate for us and for the dairyman that we have not tried to increase the consumption of milk, instead of creating a distrust as to its safety. That is to say, we should be telling the dairyman that his only hope lies in establishing the reputation of keeping only healthy cows and of producing wholesome milk, instead of "snitching" to the public about the matter of harmfulness. The one is persuasion by sound arguments, the other spells compulsion and only breeds contempt and opposition.

Mr. M. O. Maughan, in the Christmas number of Hoard's Dairyman, writes about the activities of the National Dairy Council that should be an inspiration for the veterinarian. The article captioned "Increasing the Consumption of Dairy Products" tells what this organization is doing for the dairy interests all over the nation in the matter of driving home to the people the value of milk as a food. The council has established a "Child Health Day"; developed plans for successful milk campaigns; made up a course in food-budget work for mothers' clubs; developed a system of serving milk in schools; prepared booklets, folders, posters, health plays and mechanical devices to portray the advantages of milk as a food; organized a staff of nutrition and organization experts; and established a department to combat false advertisements of the producers of milk substitutes.

Program of Helpfulness

The whole program is one of helpfulness, not only to the interests it represents, but to all of the people. We say, "to all of the people," because successful dairying means successful agriculture and successful agriculture means a successful people, a people that is strong, healthy and prosperous.

Whether the veterinary profession should array itself with these movements or not is now for its leaders to decide. Some veterinarians want to be thought of as saviors of mankind by preventing humans from contracting animal-born diseases, while others want to do the very same thing by encouraging the consumption of the health-giving animal products, and at the same time be helpful to their allies—the stockmen. The question is not so much one of policy as of qualification. Some of our English colleagues, for example, would have us believe that those who question the wisdom of initiating and promoting public health propaganda are shams and quacks. Quite the contrary, it is the veterinarian who assumes the role of a public health expert who is branded as a sham and a quack, for the reason that he has not qualified himself as an expert on diseases of humans; and, therefore, when caught making exaggerated statements about what is going to happen, if the human race does not listen to his tirades, this said human race has the laugh on him. One group wants to use force and intimidation. This does some good but at our expense. The other presupposes persuasion, education and cooperation that does good, and to our advantage. The latter makes for progress in livestock sanitation while the former stultifies the project, and discredits the projectors as notoriety-seeking agitators.



—Courtesy of Hoard's Dairyman

Suggestions for the Decoration of a Veterinarian's Office

When we say that we are not qualified in public health problems we mean that the veterinarian does not go to the bed-side of the sick child and therefore can not qualify as an expert witness as to the cause of its illness; and when we spread about second-hand information obtained from the medical profession in this connection we are giving only hear-say evidence, making our vaunted loyalty to the livestock interests a mockery.

Knowledge of the transmissibility of diseases from animals to man comes to the stockman from the same source that it comes to us; from the fund of medical knowledge; and although we have a more profound knowledge of these diseases in animals than the stockman may have, we can not claim that we have any better knowledge as to their harmfulness to the people than anyone else who seeks information on the subject. That is to say, we have no especial monopoly of the known facts about transmissibility. These facts are common property.

SIXTH OF LIVE STOCK IN UNITED STATES

The United States, with only one-sixteenth of the world's population, has one-sixth of the world's live stock, says the United States department of agriculture. It has one-half of the world's 9,000,000 mules, one-third of the 169,000,000 swine, one-fifth of the 100,000,000 horses, one-seventh of the 492,000,000 cattle, and one-ninth of the 465,000,000 sheep. As consumers of meat per capita, we stand fourth in the list, with an average of 142 pounds per person per year. We are exceeded by Argentina with an annual consumption per person of 281 pounds, Australia with 263 pounds, and New Zealand with 213 pounds. Canada follows us closely with 137 pounds and the United Kingdom with 120. The figures for the United States are the average of the 10 years from 1912 to 1921, while the figures for all other

countries are pre-war figures. The meat consumption of a number of other nations, beginning with Germany, which had an average per capita figure of 115 before the war, gradually decreases down to 47 for Italy in the following order: Germany, France, Denmark, Switzerland, Belgium, Netherlands, Greece, Austria-Hungary, Norway, Sweden, Poland, Russia, Spain, Italy.

ANIMAL-BORN DISEASE DOES NOT STARTLE THE BIG ONES

W. L. Williams, professor emeritus, New York State Veterinary College, Cornell University, in a recent interview said: "The number of human beings that actually contract disease from the consumption of animal foods is negligible." Cadiot, director of the veterinary faculty of l'Ecole Nationale d'Alfort has recently said the same thing, and Koch, who discovered the Mycobacterium tuberculosis, entertained the same idea. Here we have three men of different nationalities, whose opinions few would question, and whose lives have been devoted with a telling effect to the livestock interests of their respective countries, giving us a cue, a hunch, as to the limitations of our disease-eradicating programs.

Our mistake, until now, has been that of always keeping the livestock interests on the defensive, with only mediocre results to them and to the disadvantage of ourselves. We ought to take the only course that will ever get them or ourselves anywhere, the course of gradually but surely driving home the truth that sound, healthy animals hold out the only hope of the stockman; that disease not only ravages the animals but that it makes the food they produce unpopular and thus handicaps the selling of them. Veterinary science must justify its existence by its worth to agriculture, not by its worth to public health. We know nothing about the diseases of humans; we know little enough about those of animals; and we cannot qualify as experts about transmissibility of diseases to humans, even if we do claim to accumulate considerable of second-hand information by reading. Scientific knowledge today must come first-hand; right out of the laboratory to be entertained. Ours is a knowledge of animal diseases only. When the people want to know where they contract disease they will not come to us, they will ask the physician, not the veterinarian. If we are able to supply the physician with useful information about animal diseases that he can put to good use, so much the better for us, but when we endeavor to tell the physician that certain of his patients have contracted disease from certain of our patients, we are saying something we are not in a position to prove and thereby make ourselves more or less of a nuisance to both.

The role of the veterinary profession as it seems to be unfolding in the United States today is that of keeping livestock healthy (the field man's function) and of handing over to the consumer food products that are pure and wholesome (the food inspector's function). Here our mission comes to an abrupt end.

THE ORIGIN OF SPECIES

Our friends who chide us about our skepticism in regard to the theory of evolution are reminded that Darwin himself said that "not one change of species into another is on record," and that we do not vie with W. J. Bryan in search of support of our contention that science has not yet succeeded in discrediting the story laid down in Genesis, whether it is biology, geology, Egyptology or fossillology. The Dutch botanist, De Vries, said, "Species do not originate, but disappear in the struggle for existence," and Professor Ethbridge, the noted paleontologist of the British museum, whose opinion must be regarded as the last analysis of the subject of evolution at this moment, has recently declared: "This museum is full of proofs of the falsity of evolution." Thus we note that the opponents to the doctrine of evolution belong to two very distinct groups: the religious bigot and the ultra-savant, the one gets his viewpoint through his blind faith in the Bible, the other through profound study and observation. What is the poor mediocre to do?

AND STILL THE CLASS ROOMS ARE EMPTY

"Senator Gemmill," a member of the upper house of the Minnesota legislature, says the Fairmont (Minn.) Sentinel, "is going to stop the leaks in the pockets of farmers and the 'veterinary' is the first to receive attention." According to this champion of the cause of agriculture, "Farmers are at the mercy of the 'veterinaries.' They charge almost any price and the farmer must pay it or let their hogs die. There is no reason why the farmer can't vaccinate his own hogs. They make 100% on that serum, then charge 50 cents per head and perhaps one dollar a mile. A 'veterinary' came out and vaccinated my hogs. He put in two hours and charged me $120 for 150 hogs. He went over to my neighbor's and got $82 and then got in two more jobs that day as big. Veterinarians in some cases are making

$200 to $300 a day," this paper goes to relate.

But what puzzles us is the fact that in spite of this remarkable prosperity of our Minnesota colleagues, there are so few of their sons in the class rooms of the veterinary colleges. Evidently $300 a day is no lure up there. In other words, the senator is speaking of the exception and not the rule.

"KNOWLEDGE WILL OUT"

"The one thing we must get fixed into our heads is that no one has a monopoly on the world's knowledge" seems to me is hitting the nail right on the head in the controversy about the teaching of veterinary science in the agricultural curriculum, and I congratulate VETERINARY MEDICINE for having the courage and foresight to bring this matter before its readers in the strong terms contained in the editorial entitled "Medical Knowledge Among Laymen not Harmful." It is unbecoming of any learned profession to withhold secrets from the people for individual exploitation. It puts scientific knowledge on a parity with trade secrets, and makes a trade out of what should be carefully maintained as a profession.—A. P. T., Ohio.

THE HOG INDUSTRY HAS A BRIGHT FUTURE

There is no industry allied to agriculture today that has as bright and immediate future as the breeding and marketing of hogs. With the swine plagues that only a few years ago made this industry one of chance now well controlled wherever there is an inclination to do so; with the gradual increase in the profits of the industry as a whole; and with a better understanding of the kind of rationing that brings the best results, there seems to be no limit to the magnitude to which this industry can be developed.

Corn, the most important of all crops in this country, both from the standpoint of acreage and value, will never again go begging for a market so long as it can be transformed into a certain definite amount of pork right on the farm where this king of all cereals is raised; and the hog which now plays the role of farm hand where labor is high and scarce, by harvesting the crop himself is destined more and more to become a part and parcel of farm life where corn can be grown. The control of swine scourges and the "hogging down" of the corn fields in the fall are bound to play a capital role in the national welfare during the next few years, unless all signs fail.

"ABOLISH THE PRACTITIONER AND YOU HAVE ABOLISHED DISEASE-CONTROL"

In a paper read before the Iowa State Veterinary Medical association published elsewhere in this issue, Dr. Henry Hell of Wilton Junction, Iowa, supplied the above inspiring caption, and among many other timely warnings both to the stockman and veterinarian said, "We must first put our house in order."

In a few words Dr. Hell has told the full truth. Veterinary science can not live very long in the state of good health that will keep it growing if the practitioner is abolished; it will die from numerical weakness, instead of becoming more and more the effective guardian of an $80,000,000,000 industry. Such a big industry, like a corporation has no soul; it can be thoughtless, cruel and ungrateful, through faults it cannot control. We could not say the same thing about the individual stockman any more than we could about the individual stockholder. The stockman, like the stockholder, has a soul. He is a normal human being. It is the integer and not the units we have grounds to complain about, for wherever we commune among the people we find there is no quarrel between the stockman and the veterinarian who administers to his wants. They are friends and as a rule more loyal to each other than members of other professions and their clients. The isolated cases of quarreling are generally between the incompetent veterinarian and the unsuccessful stockman. They do quarrel with each other and the sooner both are out of the way the better for all concerned.

Proficiency Our Hope

The veterinary profession and the livestock industry, on the contrary, are having serious quarrels because like the corporation neither has a soul, and must therefore come to some definite understanding, not through sentiment, but for business reasons. The one cannot prosper permanently without the other. Sooner or later both these industries will have found this out and things will then go better. Just now, as the soulless livestock industry does not fully understand the soulless veterinary profession, it is a part of our work to bring about an understanding, but before we can come to an understanding we must be something that can be understood. We must have fixed policies. We must be a definite entity. We must be proficient.

Practitioners Lack Leadership

The veterinary profession is suffering just now because its bulwarks—the practitioners—are not in control, because they have no leader, no unself-

ish champion. The livestock industry—cold and soulless—is becoming afraid of us because those commanding us are asleep and are doing funny things it fears might become serious if we were to get more power, more strength, more influence. We are simply something to watch rather than to fear. If we limit our activities to the control of disease of animals we will be supported, protected, admired and even loved by the livestock industry; but when we begin to meddle in public health matters to justify our existence we become something to fear; a kind of insignificant nuisance that must be watched. Get the idea on page 212.

ORGAN EXTRACTS ATTRACTING ATTENTION

The following quotations from a recent French publication on endocrin glands, written for the medical profession, indicates the new importance being placed on the extracts of organs in therapeutics and bears out the work now being done by Shigley and King for the veterinarian:

1. The placenta stimulates the secretion of milk.

2. Extract of the cow's mammary gland is galactogogue.

3. Some good results have been produced by extract of the lungs in the treatment of pulmonary tuberculosis.

4. Extracts of the kidneys are helpful in the treatment of eclampsia and acute nephritis.

5. Milk and eggs can be considered in the sense that they actually are organotherapeutic products.

The book containing these somewhat startling statements is entitled "Endocrin Glands and the Sympathetic System", by Lerebouillet, Harvier, Carrion and Guillaume.

What has the veterinary profession done for the live stock interests? Well, for one thing it has (for many years without public help) kept pace with the medical profession in the matter of applying medical science to the prevention and treatment of animal diseases just as fast as medical facts were disclosed. Its research works have never lagged behind; some of them have been leaders; and they have given the livestock industry the benefits of up-to-the-minute developments in medical science. This is not the whole story, but is it not quite creditable?

NEW NAMES FOR MANY WELL-KNOWN BACTERIA

Readers of veterinary literature must prepare themselves for somewhat of a surprise in the nomenclature of bacteria that will henceforth appear in current literature. The Society of American Bacteriologists through a special committee appointed for the purpose have revised both the classification and the names of many of the well-known pathogenic bacteria with a view of removing at least a part of the confusion that has always arisen from the multiplicity of names and especially the arbitrary use of them by writers. The confusion has probably been greater in veterinary journals and books than elsewhere because of the carelessness of our literati in the matter of following the consecrated customs.

The first book written for the veterinarian, adopting the new idea, is Veterinary Bacteriology, by Professor Buchanan of the Iowa State College. It is worth a place in every veterinary library if for no other purpose than that of supplying readers of current literature with definite information in this connection. The following are some changes of immediate significance:

Old Name	New Name
Bacillus mallei	Pfeifferella mallei
Bacillus necrophorus	Actinomyces necrophorus
Bacillus botulinus	Clostridium botulinum
Bacillus edematis maligni (Vibrion septique)	Clostridium edematis
Bacillus anthracis symptomatici (Black leg)	Clostridium chauvæi
Bacillus tuberculosis	Mycobacterium tuberculosis
Bacillus coli	Bacterium coli
Bacillus erysipelatis suis	Erysipelothrix rhusiopathiæ
Bacillus abortus (Bang's)	Brucela abortus
Bacillus pyocyaneus	Pseudomonas pyocyanæ
Bacillus avisepticus	Pasteurella choleræ gallinarium
Bacillus suiseptica	Pasteurella suiseptica
Bacillus bovisepticus	Pasteurella boviseptica
Bacillus pestis	Pasteurella pestis
Bacillus tetani (B. of Nicolaier)	Clostridium tetani
Micrococcus ascoformans	Staphylococcus ascoformans

TEACHING VETERINARY SCIENCE TO AGRICULTURAL STUDENTS

By F. B. Hadley, Madison, Wisconsin

The controversy between practicing veterinarians and veterinarians engaged in teaching veterinary science to agricultural students and farmers has recently been revived in these columns. Since some hard feeling may have resulted, due to each not fully appreciating the point of view of the other, additional facts may help to clarify the atmosphere.

The Practice Will Continue

It is certain that veterinary science will continue to be taught in agricultural colleges, because the college veterinarian has demonstrated to the satisfaction of his associates and former students that the courses which he teaches contain information that rounds out the student's education and makes him a more intelligent live stock man. However, veterinary science has not yet attained the place in the agricultural curriculum which it justly deserves. This is partially because it has not been presented in a way to bring out the close relationship that should exist between it and the natural and physical sciences now taught. Fortunately, advances are being made along this line, so we may hope for fuller recognition in the future.

Makes Pertinent Comparison

The very apt comparison made in the editorial in the February issue may be augmented by others. For example, human physiology and anatomy are taught to prospective physicians in the same classes with young men and women who are pursuing general science courses, yet who do not plan to become physicians. We are not aware that reputable physicians feel that these students will encroach upon their professional field. Neither have we heard of a practitioner of human medicine raising an objection to non-professional students being taught as much about the construction and workings of the human mechanism as is known. In fact, students in nearly every college and university worthy of the name are urged to take a course in "Health and Disease."

Uplifts Veterinary Science and Practice

Many veterinary practitioners have told the writer that the farmer who has had an opportunity to study the structure and functions of the animal body, and has learned even a little about the common diseases of livestock, is the most satisfactory client. This is because he appreciates the skill and knowledge of the veterinarian more than the uninformed layman. Moreover, such men, through their ability to read veterinary literature, are able to understand the medical terms used so frequently by veterinarians in discussing a case, and are accordingly easier to instruct regarding their sick animals. This tends to break down the barrier that was erected in the dark ages, and which has been a source of much unfavorable comment and misunderstanding on the part of the laymen. If we admit that education is desirable for the farmer, should we not aid him in every way possible to increase his knowledge relative to the judging of animal form, capacity and productivity, and in regard to the feeding and breeding of animals, as well as the principles of disease prevention and control?

The animal-breeder of today is determined to procure information about the structures which lie hidden beneath the skin of his animals. The logical source of this information is the veterinarian. If we do not freely and frankly give it, we force our friend to seek it elsewhere. The question, therefore, resolves itself into one of expediency. Shall we sit idly refusing to enlighten the animal-breeder on subjects concerning which we are presumably well informed; or shall we share the light which is ours with him?

Anatomy and Physiology Better Than Study of Disease

Experience has taught that the study of veterinary anatomy and physiology by agricultural students is better adapted to their needs than is the study of disease. This is because the latter must of necessity consist largely in the mere memorizing of groups of causes, symptoms, and treatments, since at best they have only a limited opportunity for clinical study. Accordingly, emphasis is placed by most teachers of veterinary science on the former subjects, objection to the teaching of which cannot at present be justified on any reasonable grounds.

Keeping Up-to-Date is the Crux

The whole difficulty in this matter seems to be the well-informed farmer, because the ignoramus does not know enough to criticise, to engage in a discussion, or to attempt to treat his sick animals. The practitioner and teacher of veterinary science, therefore, must keep himself informed concerning up-to-date procedures. This is, to my mind, the crux of the matter.

for if the farmer finds that his veterinarian does not know more about veterinary science than he knows, and is not as well informed as he is, concerning the breeding, feeding and care of livestock, he soon loses confidence in him. Accordingly, it behooves all of us to keep abreast of the times. If we do this we need have no fear that the knowledge possessed by laymen relative to any phase of our professional work, no matter how broad or deep it may be, may prove a menace.

SWINE "FLU"

Kinsley defines "flu" as an acute disease of swine characterized by thumps, spasmodic cough, inappetence and loss of flesh. The duration is from four to six days.

It is prevalent in Missouri, Kansas, Nebraska, Iowa, Illinois, Indiana, Ohio, Michigan, Minnesota and South Dakota.

The symptoms are: loss of flesh, high fever (up to 108° Fahr.), anorrexia, tendency to lie down, thumps and spasmodic cough. It spreads rapidly through the herd, attacking swine of all ages. Pigs and shoats are slightly less susceptible.

The causes which predispose to the disease are poor ventilation, improper ration and insanitary surroundings. It is probably infectious but the specific agent is not known.

The incubation period seems to be about 12 hours and the avenue of entrance seems to be the respiratory tract.

The treatment consists of removing the predisposing causes, purging with castor oil and the early administration of mixed bacterins.

VITAMINS AND MINERALS. GRANDULAR THERAPY

Vitamins and minerals for the prevention of avitaminosis and deficiency diseases are now the center of attraction in the various fields of chemistry, medicine and animal production; they offer a very large and attractive field for investigation, and though many interesting and helpful agents have been discovered and carefully described, this field has as yet only been scarified, and many new facts will be gradually brought forth as investigations are continued. As a result of thorough, extensive investigations glandular therapy has also gained wide prominence and today it too fills a very important place in veterinary medicine. The subject of endocrinology is a rich one and offers almost a virgin field for further research, with the prospect of finding and developing new materials which will be of great value to those engaged in the study and treatment of diseases of man and the lower animals. (Excerpt from W. L. Boyd's presidential allocution, Minnesota Veterinary Medical Association, January 10, 1923.)

"BEHIND THE BREAKFAST PLATE"

"Behind the breakfast plate" is the name of a new film exhibited under the auspices of the United States department of agriculture. It portrays the esthetics of the hog industry and is commendable, to say the least. It is constructive in intent as well as in fact. Compared with the abomination called "Out of the Shadows", which is destructive on both these scores, "Behind the Breakfast Plate" is a relief, and holds out to the dairy industry the hope that it, too, may some day become the beneficiary of helpful propaganda from the same source.

Veterinarians in Attendance at the First Annual Conference for Veterinarians, Given at t..e University of Wisconsin, Madison, January 1923.

Purely Practical

If you want to be successful, make friends.

Flavisol is the best intestinal antiseptic for necrotic enteritis of swine.—Schwarze.

Besides birth itself, weaning is the most critical event of an animal's existence.

Vitamins are derived from foods by animals and are not synthetic products of digestion.

Treat dog urticaria promptly or it will cure itself.—Flynn. It's the same with horses.

Fleas will not stay long on a dog in a hospital where there is no place for them to hide and breed.—Flynn.

A pint of saponified pine-oil to a gallon of water is the best medical treatment for fleas on dogs.—Flynn.

The official lime and sulphur dip is the best treatment for sarcoptic mange of dogs.—Flynn.

It is not safe to dust louse powders on nursing puppies.—Flynn.

The dose of arsenic for a 30-pound dog is 1/60 to 1/30 of a grain three times a day.—Flynn.

There is nothing to do for cattle badly infected with warbles but to market them and take the loss.—Anderson.

J. B. S. advises the readers of the Duroc Bulletin to "Fill an oil-can with muriatic acid and put it on the affected foot." He says it will eat holes through the oil can, but does not fully explain what it will do to the hog's foot.

FLYNN'S TREATMENT FOR FOLLICULAR MANGE

℞

Sulphur
Oil of tar of each.....2 ozs.
Kerosene .....2 pts.
Apply on the 1st, 3rd and 9th days.

Have faith in yourself, and do not be too modest to let others know it.

Abolish the practitioner and you have abolished disease control.—Hell.

Truly now, can the vaccination of hogs be learned in a two-day course?

The vaccination of suckling pigs does not give an immunity "solid" enough to stand up against field conditions.—Steel.

Keeping swine free from worms has the added advantage of keeping them from many other troubles.—Steel.

If you must vaccinate a herd of hogs affected with necrotic enteritis, use virus and an increased dose of serum.

Niles' advice about the vaccination of suckling pigs seems to have mighty few exponents among the veterinarians of the Corn Belt. "Don't do it," they all say.

Vaccination of hogs by contract should be discouraged, because the same "plans and specification" will not do for all herds alike.

Serum alone treatment of swine, followed by the simultaneous treatment, seems to be a mighty dangerous practice, according to the experienced practitioners who discussed the subject at the recent meeting of the Missouri Valley association.

FORMALIN TREATMENT FOR FOLLICULAR MANGE

A five percent solution of formalin and a two percent solution of formaldehyd should be used. This is sponged all over the affected area and allowed to remain until the patient becomes uneasy. The application is painful. When the pain reaches the point of severity annoint the area with vaseline. One treatment is often sufficient. When there is a recurrence or new pustules appear the application may be repeated.

Acute Nephritis in the Dog and Cat

By Oscar Schreck, Associate Editor

Definition

Acute nephritis is an acute inflammatory condition of the kidney, invading the secreting structure, the parenchyma. Nephritis in the small animals is fortunately not a common disease. It is generally very slow in its inception, coming on gradually and is not manifested at first by any special syndrome until it has become formidable. As the animal is free from mental emotions, or harmful habits, the disease is rarely ever primary.

In the cat, however, there is little doubt that nephritis in its milder form is much more common than was formerly supposed. A few years ago veterinarians paid little attention to the state of the kidneys in the small animals, and the urine was seldom examined. It is now known that catarrh of the renal tubes frequently occurs in a mild form early in some cases of distemper, and blood poisoning, without causing dropsy, or any notable symptom. It may only produce a smoky color of the urine.

Etiology

This form of kidney disease in the small animals is seen more often in the young than in the aged animal. An exception to this exists in the puppy, and the liability continues until two or three years of age, and indeed, though greatly diminished, does not entirely cease after that period. In looking for the evidence of nephritis in acute infectious diseases, it must not be forgotten that intense febrile movement may, and in fact does, cause nephritis independently of any structural change in the kidney, due to the toxic agent.

It may occur during, or as a sequela of infectious diseases, such as distemper, pyemia, pneumonia, septicemia, chronic skin disease, chronic affections of the lungs, blood poisons, calcareous matters in the kidneys, or by extension from the bladder (cystitis). A certain number of cases originate in exposure to cold, especially cold and dampness, or a sudden chilling of the body. The latter cause is particularly potent if the animal be somewhat fatigued or exhausted, after a long hunt or run.

Sometimes Caused by Renal Irritants

Certain poisons of vegetable and mineral origin are capable of producing acute nephritis by causing severe irritation, as they pass through the kidneys. Among the best known of these substances are cantharides, turpentine, camphor, croton oil, oil of mustard, oil of tar, mercury, ergot, arsenic, wormseed oil, phosphorus, nitrate of silver, carbolic acid, lead and naphthol, when given in too large or too often repeated doses. Also drugs containing essential oils, such as cubebs, copaiba, male fern, and arsenic are among the most active and most frequently the cause of the congestion. The presence of urate of soda in the blood is also a cause.

Male fern, a favorite vermifuge, and cantharides, a common blister, poison by the animal licking it off, or by absorption.

Traumatic lesions of the kidneys such as blows, automobile accidents, falling from a height, and landing on the back, may lead to suppurative nephritis.

Symptoms

It would be almost impossible to lay down any definite rules in the small animals for our guidance in reference to the diagnosis of the above affection. In a large number of cases the renal symptoms are necessarily more or less completely masked by the graver morbid conditions with which they are associated.

The onset is not uniform, but among the symptoms earliest noticed is the febrile phenomena, comprising quickness and hardness of the pulse or high tension from the beginning, heat and dryness of the hair and skin, and clammy mouth, followed by loss of appetite, shortness of breath, vomiting and frequent micturition, the animal going through the movements peculiar to its sex, and perhaps passing but little, or a few high-colored drops. The specific gravity is high (1035-1050), due to the diminished amount of water, since the solids in the aggregate are below normal. It contains abundant albumen, often blood, and a diminished quantity of urea. Microscopically, it shows epithelial, hyaline, granular, or bloody casts. The urine is of high specific gravity and the daily amount is low. Dropsy may be slight, or take the form of anasarca. There may be dangerous dropsy of the serous sacs, edema of the base of the lung or of the glottis. Anemia is marked.

The frequent desire to micturate is purely a reflex as the bladder is free from the disease. It sometimes precedes, in point of time, all other symptoms, but is by no means constant.

Uremia Common in the Cat

Uremic symptoms are seen more often in the cat than in the dog. The animal will be more or less restless, the bowels constipated, and there is great thirst. Hypertrophy of the heart is seldom marked in acute cases, although acute dilation of the heart may occur. If improvement is not prompt, grave dangers arise from uremia. Severe convulsions and coma soon bring a fatal termination. Most cases, however, with care, recover, others pass into the subacute stage or into the stage having large white kidneys, which are common in the cat.

There may be a somewhat stiff, straddling gait, and tenderness on pressure over the loins (but the last symptom in small animals is no criterion), and diarrhea is sometimes present.

Not infrequently in the cat the disease is ushered in by vomiting.

Treatment

Nephritis in the small animals needs special care, as all cases in which diminution in the quantity of urine occurs demand prompt attention whether attended with any other symptom of renal disturbance or not. If simply a febrile phenomenon, the reduction of the temperature and increased allowance of fluid may suffice. At the same time, many cases of acute nephritis recover under the conditions of quiet and warmth, and it is further certain that, whatever other means of treatment are used, these two conditions are absolutely necessary to recovery.

As the kidneys are in an irritated state, all stimulants should be avoided. It is important, if possible, to control the inflammation in progress.

To assist in relieving the kidneys of congestion, and to remove obstructions from the tubules, diluents must be frequently used. The most important diluents are milk, cream of tartar solution, skim milk and butter milk, given warm. In fact, milk may be considered the best food, not merely because of its easy assimilation and nutritious character, but because albuminuria diminishes under its use and the amount of nitrogen contributed to the blood is less than from meat. Remember that nitrogenous extractives are highly irritating to an inflamed kidney, hence the necessity of diminishing the quantity of proteins given. Such preparations as beef should not be given.

Rice and farinaceous preparations generally are suitable adjuvants to the milk diet, if the stomach is irritable, milk and lime water (3 to 1) should be given. The bowels are to act freely and be kept active by the use of calomel if necessary. One dram of heavy magnesia in milk every day, preferably at night, is very beneficial in toy pets, and cats.

Quinine has a high degree of merit in these cases to keep down the abnormal temperature, to support strength, and to prevent pus formation. It is very important to keep up the strength. The animal should be kept warm, and the administration of diuretic doses of acetate or citrate of potash and other equivalent medicines to meet the case in hand. Infusion of digitalis is especially recommended and has brought the best results when given to cats as follows:

℞

Infusion digitalis	4 drs.
Diuretine	15 grs.
Tinct. strophanthus	15 grs.
Potassium acetate	2 drs.
Infusion juniper	2 drs.

Mix and give a teaspoonful every six hours.

Indications:—Used as a stimulating diuretic during later stages of acute or chronic nephritis with weak heart, low arterial tension, and renal congestion.

℞

Caffeine citrate	36 grs.

Make 12 capsules.

Give one capsule three times a day after feeding.

Indications:—Used as diuretic in later stages of acute and chronic cases. During the convalescence the anemia should be treated with iron.

℞

Liquor iron and ammonia acetate	8 oz.

Give one to two teaspoonfuls in water every four hours.

Indications:—Useful in anemia of nephritis.

The perchlorid of iron, well diluted, which is a diuretic as well as a tonic and a favorite remedy. The congestion is also relieved by the use of hot wet packs, and in a number of cases has proved effective in the toy breeds.

As there is a tendency for the congestion to recur, the patient should be given good care during convalescence.

To counteract convulsions the use of chloral hydrate is indicated, but its administration is not without unpleasant features in the form of clysters. To sum up the treatment, there are three important points to accomplish. Elimination of urea, (2) removal of inflammatory

products, (3) and to counteract the effect of urea upon the nervous system.

The foregoing measures have for their object the direct relief of the congestion of the kidney. This is further accomplished by purgation, which supplements the action of the kidney. Absorption is slow when the blood vessels are congested and there is a sluggish current. The cathartic relieves this turgor, and after its effect prompt absorption and action of other remedies may be looked for.

The indication is to get a watery bowel action as soon as possible. In view of the fact that the stomach is often sensitive, it is desirable to use an aperient that is not nauseous or irritating.

Case Report

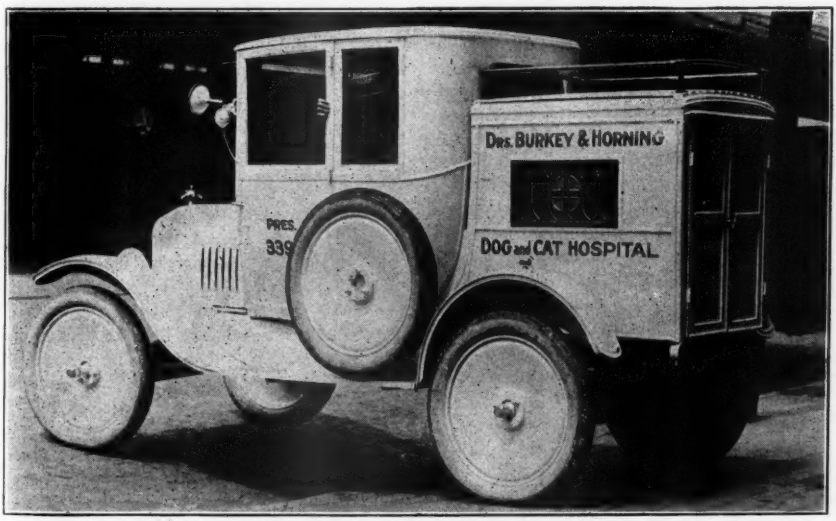
Male cat, aged five years, sickened with renal disease, on June 2. It began with vomiting, and was attended by a degree of fever which indicated an attack of rather more than the average gravity. The case, however, progressed favorably under treatment, and during the convalescence my attendance ceased. On June 24 when my attention was again called to the cat, the urine was scanty and frequent attempts were made to empty the bladder. External measures were employed, and the infusion of digitalis with potassium acetate ordered to be given every three hours; but this medicine was nearly all vomited. The bowels were kept open. The urine, however, continued scanty when on June 28 severe convulsions occurred. The pulse during the convulsions was quick and feeble. The skin was hot and the temperature per rectum 103°. The eclampsia continued one-half hour, and was controlled by large and repeated doses of bromid of potassium, aided by clysters of three grains of chloral hydrate in water. Muriate of pilocarpine was now given in doses of one-sixtieth of a grain every three hours, dissolved in cold water. The owner stated that the animal was given only two doses when the diuretic effect was manifest.

On June 20, the pulse was 98, temperature 102.5°; occasional convulsive attacks occurred, which were readily controlled by enemata of chloral hydrate. On June 30 the symptoms were all better; no more attacks of eclampsia had occurred, and the urine was abundant. The owner remarked that the medicine (pilocarpine) had settled the stomach, increased the urine, lowered the temperature, and improved the appetite.

Rickets is due to overnutrition, with the consequent interference of the functioning of cells.—Jundell.

Inorganic phosphates in the blood are usually diminished proportional to the degree of severity of rachitic lesions in experimental animals.

The malaria protozoan may be transmitted from a mosquito to a human 55 days after the mosquito has obtained the parasite from an infected human.



Smart, Classy and Apropos, is the least we could say about the Small Animal Ambulance Operated by Drs. Burkey & Horning of Houston, Texas, where they conduct an up-to-the-minute Veterinary Hospital.

Oil of Chenopodium

By Maurice C. Hall, Associate Editor

Source

OIL of chenopodium is obtained in this country from a plant known as *Chenopodium ambrosioides anthelminticum*, a member of the goosefoot family. The plant is also known as American wormseed, Mexican tea, Spanish tea, Jesuit tea, Jerusalem tea and Jerusalem oak, in Mexico as epazote, in Chili as paico, in some Spanish colonies as manga paico, among the Brazil Indians as mastruco or mastriz, in Peru and Cuba as parota, pasote, epazote, or apozote, in the Philippines as aposotis, in Brazil as herva de Santa Maria, and in the Antilles as Creole wormseed. It is said to have been naturalized in this country from tropical America, and is distributed from Maine to Florida and California, being more common in the eastern and southern parts of this country.

Commercial Production

It is cultivated commercially in a small area in Carroll County, Maryland. According to Stockberger, the seed is sown about March 1 and the young plants, when 4 to 5 inches tall, are transplanted between May 15 and June 15 and set about 10 inches apart in rows 3 feet apart. The plants are harvested early in September, as soon as the seeds have turned black but before the plants have turned brown. The entire plant is cut or the branches cut off with large knives or sickles, the cut material being laid on the ground in rows and allowed to cure for about 3 days before distillation. The yield of seed per acre averages about 1,000 pounds. A fair average yield of oil per acre is about 40 pounds. Cultivated plants yield a better grade of oil than wild plants, the former having 70 per cent of ascaridol whereas the latter may have only 40 per cent. The average annual production of oil is estimated at 10,000 to 12,000 pounds. The pre-war price was $1.40 to $5.50 a pound; the price in June, 1920, was $9.00 to $9.50 a pound. There is considerable variation in the oil yield of various plants of the species *Ch. ambrosioides anthelminticum*. Bruening states that the plants yield 1.5 to 2 per cent of oil, but Chevalier says the seeds may yield 0.6 to 1 per cent of oil and the leaves 0.35 per cent of oil. Garrigues quotes Engelhardt as having obtained 3.5 drams of oil from 13 ounces of the seed, which would be over 3 per cent. According to a Maryland distiller, the plant yields oil at the seeding time, but the seeds themselves are a small factor in the quantity of oil, the quantity varying with different lots of plants. Russell reports that the best results are obtained by distilling with a large volume of steam in a relatively short period of time.

Chemistry of the Oil

Garrigues investigated oil of chenopodium in 1854 and reported that it contained a hydrocarbon boiling at 176°C. and a liquid with the formula $C_{10}H_{16}O$. Schimmel and Company, by fractionating at reduced pressure, separated a substance they called ascaridol, which has the formula $C_{10}H_{16}O_2$. Nelson also obtained this and regards it as an unstable dioxid; it burns when poured onto mercury heated to 260°C. and decomposes with explosive violence on adding sulphuric, hydrochloric, nitric or phosphoric acids, or on heating to near its boiling point. Schimmel and Company found cymene and some other terpenes in oil of chenopodium. In old oil Nelson found camphor. He reported that the terpenes include *p*-cymene, *l*-limonene and probably *a*,terpenine. Caius and Mhaskar find ascaridol, *p*-cymene, phellandrene and terpinene; they doubt the occurrence of carvenone and camphor. Henry and Paget find minute quantities of the lower fatty acids, chiefly butyric acid, and less than 0.5 per cent methyl salicylate, at least 60 per cent ascaridol, about 5 per cent of ascaridol glycol, approximately 15 per cent of cymene, 5 per cent *a*-terpinene, and 10 per cent of a new lævorotatory terpene. They find no trace of sylvestrene, limonene, phellandrene, safrol, or camphor, all of which have been reported as present.

Pharmacology

The physiological effects of oil of chenopodium have been studied by various investigators, notably Bruening, Gockel, Kobert, Linke, Schmitz, Thelen, Salant, Livingston, Bengis, and Zeigler. The drug depresses unstriated musculature, thereby stopping peristalsis in the digestive tract, causing constipation, nd permitting of excessive localized absorption of the drug with further toxic effects in those cases where there is inadequate purgation. It is also a depressant to the circulatory and respiratory mechanism. In addition to its depressant action, the drug acts as an irritant to the gastro-intestinal mucosa and the kidneys. Caius and Mhaskar report that the drug is eliminated in part by the kidneys after conjugation with glycuronic acid. In lethal doses

there is a high grade enteritis and Zeigler states that in such cases death results from acute diffuse nephritis. In connection with this irritant action it has been reported to me that workers who handle large amounts of chenopodium in warm rooms for hours suffer unpleasant and painful sensations on the hands and in the eyes and throat. Caius and Mhaskar reports uterine disturbances following chenopodium, including return of menstruation after menopause, metrorrhagia and abortion.

Use in Human Medicine

According to report, chenopodium was used as an anthelmintic by the American Indians for centuries before Columbus landed here. It was used as a home remedy in treatments for removing worms in the rural districts in the Southern United States, Mexico, Brazil and elsewhere. The drug had not yet received careful study and occasional fatalities were reported in connection with what were at times excessive overdoses, one patient being given an ounce of the oil of chenopodium in divided doses in one day, and another patient 1.5 ounces with a half ounce of turpentine. In 1881 Baumler introduced the drug into Europe on the strength of favorable reports from Brazil, and treated a case of hookworm in man with it, the treatment proving a failure. This one case probably served to more or less discredit the drug. Calmette and Breton reported in 1905 that chenopodium had proven ineffective in ancylostomiasis, but they do not refer to any cases and it is possible that they were making their statement on Baumler's one case. Bruening reported on the use of the drug in 1906, confirming the efficacy of the drug against ascaride as reported in medical practice and household use in the Americas. Schuffer and Verwoort in 1912 found it a valuable drug, alone or combined with chloroform, in treating hookworm disease in Sumatra. Levy in 1914 report what appears to be the first cases of the use of this drug against hookworms in man in the United States. At the present time this is probably the most extensively used drug for the treatment of uncinariasis in man, being apparently more effective than thymol or betanaphthol for this purpose. Carbon tetrachlorid is now being used in many places in the tropics for the removal of hookworms from man and the present indications are that it will have some advantages over chenopodium. It is possible that a combination of chenopodium and carbon tetrachlorid will be found the most satisfactory preparation for simultaneous treatment of hookworm, ascarids and some other worms.

Use in Veterinary Medicine

The first reference to its use in veterinary medicine that is available is one by French in 1896, in which he notes the use of the oil or the powdered seeds for removing worms from dogs. A report of experiments on dogs was made by Hall and Foster in 1918, their results indicating that chenopodium has a very high efficacy against ascarids in dogs and is fairly effective in removing hookworms. Further reports by Hall and Wigdor confirm these results. The drug is highly ascaricidal, but it has never been possible to obtain by critical methods of testing the high degree of efficacy against hookworms which are reported for this drug against hookworms in man on the basis of fecal examinations after treatment; the later reports from the field of human medicine indicate that the efficacy figures based on such fecal examinations were too high. The drug is unexcelled for removing ascarids from dogs. A dose rate of 0.1 cc. per kilo, a dose of 1 cc. for a dog of average size, is high enough. It requires adequate purgation. Castor oil is satisfactory if given at the same times as the chenopodium and an adequate dose, at least an ounce, administered. If the purgative is given some time later, it must be one which acts more rapidly than castor oil. In human medicine salts are most satisfactory, being commonly given 2 hours after the chenopodium. Liquid petrolatum is unsatisfactory. It masks the chenopodium, which suffers a decided fall in efficacy, is insufficiently purgative, and does not dissolve a heavy constituent of the oil which Hall has reported as highly irritant to the digestive tract. Darling, Barber and Hacker find a similar loss of efficacy against hookworms in man from the administration of liquid petrolatum with chenopodium. In the case of dogs chenopodium appears to be as effective when administered in soft capsules as when given in hard capsules; in the case of man, Knowlton does not find the soft capsules as satisfactory.

Its Use for Swine

The first use of chenopodium for removing ascarids from swine of which we are aware was in the form of some experiments by Foster about 1915 in the bureau of animal industry, these experiments being reported, in connection with further studies, by Hall and Foster in 1918. Their studies led to the conclusion that oil of chenopodium is the most effective drug we have for removing ascarids from swine. Subsequent work has confirmed these findings. The dose rate found practically 100 per cent effective by these writers is equivalent to that of 1 fluid dram of chenopod

ium for swine weighing 100 pounds. In the interests of safety under conditions in practice, some veterinarians cut this dose rate in half. Adequate purgation is necessary. Castor oil may be given in amounts equivalent to 2 fluid ounces for a 100-pound animal if given at the same time as the chenopodium, but is too slow in its action for use 2 or 3 hours later. In place of castor oil an adequate dose of salts may be given 2 hours after the chenopodium by mixing a sufficient quantity with a small amount of feed.

For Foxes and Sheep

The use of chenopodium for removing ascarids from foxes was suggested in a publication by Allen in 1920 and reported on favorably by him in 1921.

Chenopodium appears to have been first tested as an anthelmintic for sheep by Hall and Foster, who reported in 1918 critical tests on 4 sheep. At a dose rate of 0.2 cc. per kilo the drug removed all the stomach worms from 3 sheep and apparently failed to remove any from the fourth sheep, though there is a possibility that the drug may have killed a number of worms and that all of them were digested, a thing which we find may happen in the case of worms in the stomach. We have 3 or 4 satisfactory treatments for stomach worm disease of sheep, all involving the use of drugs cheaper than chenopodium. The chenopodium removed two-thirds of the hookworms from these sheep.

For Chickens

The first report on the use of chenopodium against worms in chickens appears to be that of Horton in 1917. He does not give details of his experiments. Hall and Foster in 1919 report that at a dose rate of about 0.4 cc. per kilo the drug removed 69 per cent of the heterakids from the small intestine, but only removed 2 of 349 cecum worms.

Chenopodium in Horse Practice

Chenopodium appears to have been first used to remove worms from horses by Thum who reports good clinical results from its use in 1915. Good clinical results and the passage of numerous worms in the case of one animal are reported by Woolridge in 1916. The drug was first critically tested in this connection by Hall, Wilson and Wigdor, who reported in 1918 that experiments showed the drug practically 100 per cent effective in removing the parasitic worms from the large intestine, these worms including various species of Strongylus and Cylicostomum and the pinworms. These results have been confirmed by Wright. Contrary to what might be expected from a drug which is our best known ascaride for ascarids in man, dogs, cats and swine, chenopodium in doses of 16 to 18 cc. to horses fasted 24 hours or less only removed 7 of 221 ascarids from one horse and 2 of 16 ascarids from another. As fasting appears to have a pronounced effect on the action of anthelmintics in the case of horses, better results might be obtained by longer fasts. It is usually necessary to fast a horse 36 hours to get dependable action from most anthelmintics now in use. However, we have a satisfactory treatment for ascarids in horses by means of carbon bisulphid and, apparently, by means of carbon tetrachlorid so far as tests of this latter drug have been made.

Indications for Chenopodium

Oil of chenopodium appears to be specifically valuable for removing ascarids from man and swine, being approximately 100 per cent effective in doses sufficiently small to be reasonably safe. It is effective in removing hookworms from man and carnivores, but appears to be less effective and less safe than carbon tetrachlorid. It is the most effective drug for removing ascarids from carnivores, but carbon tetrachlorid is preferred for this purpose by some on the ground that it is only slightly less effective than chenopodium and is distinctly safer for these host animals. It is the drug of choice for removing strongyles and pinworms from horses.

NEO-ARSPHENAMINE FOR ANIMALS

In an article on "Experiments on the treatment of Canine Distemper with Neo-Salvarsan", published in the February number of VETERINARY MEDICINE, under the heading "Third Observation", it is stated that a dog was given "1-gram (1.5 grain) intravenously". This is evidently a typographical error, and it probably should read 0.1 gram, as a gram contains approximately 15 grains.

The dose of neo-arsphenamine for animals has been found to be 15-milograms per kilo, body weight. This is the safe dose and could unquestionably be increased, if it was thought necessary. For instance, a 1000 pound horse, a rough estimate, 400 kilos would take 6 grams of neo-arsphenamine given intravenously. The dose for large animals generally administered is from six to nine grams, that is, approximately 90 to 135 grains. In giving neo-arsphenamine intravenously, and it should be given intravenously if possible, the neo-arsphenamine should be dissolved in distilled water that is free from any chemical impurity, and should be injected very slowly into the vein. At least one minute should be consumed in injecting the neo-arsphenamine.

The writer is doubtful if neo-arsphenamine will prove of much value in the treatment of acute cases of canine distemper. In chronic cases and particularly where there is a tendency to pneumonia, it should prove of value. Neo-arsphenamine is equally efficient and much less toxic than arsphenamine. Neo-arsphenamine is also much easier to administer as it can be given with a hypodermic syringe, while arsphenamine, after being dissolved, has to be neutralized with an alkali, and administered by gravity, as the quantity is so large it cannot be given with a hypodermic syringe.—The Abbott Laboratories, Chicago., N. S. MAYO.

Comment: Dr. Mayo's contention is correct. The sentence in question should have read "0.1 grams" instead of "1. gram" as shown by the parenthesised apothecary equivalent (1.5 grains). —Ed.

Clinical Differential Diagnosis of Some Diseases of Cattle*

By R. R. Dykstra, Manhattan, Kansas
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WHEN the average veterinary practitioner answers a country call he has in most cases but a very vague idea of the nature of the condition he will be called upon to treat. If he were to carry with him all manner of diagnostic appliances in addition to the usual paraphernalia, he would be so greatly loaded that this would be out of the question. In spite of this handicap he must make a reasonably accurate diagnosis the first time he comes in contact with his animal patient. Failure to do so places him at a serious disadvantage in prescribing or administering remedial agents in non-infectious ailments, and furthermore if he fails to recognize a highly infectious or contagious malady it will in a short time make so much headway as to be almost beyond control, and thus entail serious financial loss not only to his immediate client but possibly to the entire livestock fraternity of the state or nation.

Serious Plagues "Nipped in the Bud" by Practitioners

Our extensive outbreaks of foot-and-mouth disease would never have assumed serious proportions if the disease had been recognized clinically in its incipiency. To the credit of the veterinary practitioner it cannot be denied that his eternal vigilance has nipped many outbreaks in the bud. It is almost equally disastrous to make a diagnosis of a much feared animal malady, throwing a scare as it were into those financially interested, resulting in premature marketing of stock, tying up with quarantines and otherwise interfering with the proper development of breeding, feeding and trading problems. The veterinarian is therefore in the position where he must not be overly zealous, he must exercise sound business sense and good professional judgment; he must be discreet, and above all he must be reasonably accurate without unnecessary delay.

*Presented at the 26th annual meeting of the Minnesota State Veterinary Medical Association in Minneapolis, January 10-11, 1923.

No Sane Person Denies or Questions the Value of Laboratory Diagnoses

The laboratorian with his facilities such as high-powered microscopes, pathological and bacteriological equipment, experimental small and large animals for inoculation purposes, together with his highly specialized training and knowledge is in an ideal position to be of the greatest aid to the veterinarian in the field. Veterinarians are fully aware of the fact that clinical diagnoses with our greater knowledge of disease has become increasingly difficult. Many of us can remember when a diagnosis of "blind staggers" was all sufficient, while today such a term is but a blanket diagnosis for maladies of a widely divergent nature. What, for example, can be wider apart than the blindness and staggering sometimes observed as outstanding clinical features of "overloading of the stomach," and similar symptoms noticed in "acute botulism?"

What could be more serious than mistaking a case of simple mycotic stomatitis for foot-and-mouth disease, or to diagnose as some harmless nervous ailment a disease which later proved to be rabies, especially if a human being is involved? This simply points out that what we formerly considered as a simple ailment, we now in many instances know to be groups of clinically similar diseases, some practically harmless and others highly dangerous.

Paradoxical as it may seem, therefore, a greater knowledge of diseases has made it increasingly difficult to recognize the disease clinically. Here the laboratorian is preeminently able to function, but the practitioner must not fail to take advantage of the smallest clinical detail while waiting for the laboratorian to confirm or reject his suspicions.

Clinical Diagnosis Often Guess-Work

The writer has frequently contended that clinical diagnosis is largely guess work with the lauAl going to that veterinarian who has fortified himself abundantly by close observation, diligent study and careful judgment. To clinch a clinical diagnosis by the busy practitioner himself is not usually possible except in the rare cases where he may call to his aid such diagnostic agents as tuberculin, mallein, etc. Even post mortem examinations, great as their value may be, (and they should be a part of the practitioner's routine), fail when compared with microscopic, bacteriological and inoculation tests.

Purposes of This Paper

The purpose of this paper is to bring up for discussion a few animal ailments, especially of cattle, that have certain clinical features in common, that to the layman appear as similar conditions, and still the well-trained, close observer may by careful attention to details be in a position to make a clinical diagnosis. However, in cases where doubt exists, it is better to err on the side of safety by holding a condition as dangerous until proved otherwise. In this paper only a few of those conditions with which a practitioner is likely to come in daily contact are touched upon, our theory being that it is better to know a few things well, than to have only a hazy conception of a multitude of facts.

SCOURS IN SUCKLING CALVES

I presume that every veterinarian is frequently called upon to treat scour in suckling calves. From the standpoint of prognosis and sanitary preventive measures it is unquestionably important to be able to state whether the disease in question is the so-called true white scour, technically known as dysentery of sucklings, or whether it is the rather common scour observed in acute gastro intestinal catarrh of sucklings. It is not uncommon, especially among laymen, to diagnose as true white scour all those ailments of sucklings in which the excessive intestinal discharges are of a whitish color; however, this is a symptom common to non-infectious as well as infectious dysentery.

Differential Points

Points of greater clinical importance are that true white scour manifests clinical symptoms within three days after birth, while other diarrheas seldom develop before the animal is a week or ten days of age. True white scour is accompanied by very rapid exhaustion, and is of an enzootic character; acute gastro intestinal catarrh of a sporadic nature. In cases of doubt, and this is more likely to be the case when scour first makes its appearance on a farm, it is better to outline and adopt those sanitary measures usually employed in the infectious form until it has been proved non-contagious.

SUSPECTED RABIES FOUND TO BE PAINT-POISONING

Some time ago the writer was called upon to examine a herd of cattle in which a few otherwise comparatively quiet and docile animals exhibited intermittent irritability so that it was unsafe for the attendants to get into the lot with them. The owner and his neighbors were wrought up because they feared rabies. Inquiry developed the fact that no mad dogs had been observed in the neighborhood, this being of importance as cattle seldom contract rabies from bites of other cattle, but usually from dogs.

Test Excludes Tuberculous Meningitis and Gastro-Enteritis

The owner further stated that his herd was free from tuberculosis as demonstrated by the tuberculin test recently applied. On this basis acute tuberculous meningitis, in which great excitement, fury, convulsions and spasms which may be of a periodic nature, could be excluded.

Wholesome Feed Eliminates Botulism

Further inquiry elicited that the animals were receiving the same rations that they had been getting for some time past, and on these grounds septic or mycotic gastro-enteritis could be eliminated. The question of acute botulism in this connection was more puzzling, because our clinical knowledge of this disease is not at all clear; however, it was temporarily excluded because the grain and fodder were apparently wholesome and had not previously caused trouble.

Paint Incriminated

The fences and barns had recently been painted with lead paint which the cattle had been observed licking, and it was not beyond doubt that some of them had access to paint buckets while momentarily cut of the painter's sight. Veterinary writers mention the intermittent irritability, mania and convulsions sometimes observed as a result of lead poisoning. In the writer's opinion a diagnosis of acute lead poisoning was confirmed when the malady responded to the internal administration of magnesium sulphate and potassium iodid.

Conditions Simulating Foot-and-Mouth Disease

Since the outbreak of foot-and-mouth disease a few years ago, with the extensive losses suffered by some cattle owners and the very extensive advertising the disease received, people are to some extent familiar with the disease. They do not usually know that there are clinically closely related diseases, and they are absolutely unable to distinguish between such diseases. Therefore we are still receiving requests to investigate what is feared by the owner to be foot-and-mouth disease.

To the well versed veterinarian no trouble is occasioned to exclude on a clinical basis such ailments as foot-rot or necrobacillosis, and cowpox or variola.

It is also reasonably simple to distinguish mycotic stomatitis on the ground that it affects sucklings almost exclusively, that the vesicles are all very small and that there are false membranes though these latter are not observed in foot-and-mouth disease.

Vesicular Stomatitis More Difficult to Differentiate

On the other hand, vesicular stomatitis is symptomatically closely related to foot-and-mouth disease. Important points to bear in mind in differentiating the two are that vesicular stomatitis affects horses and cattle, while hogs are insusceptible; foot-and-mouth disease affects cattle, swine, and other cloven footed animals, while horses are immune.

Some of the vesicles in foot-and-mouth disease are frequently quite large, though in vesicular stomatitis uniformly small, and it is well to remember that an elevated temperature is an important feature at the beginning of foot-and-mouth disease but is not found in vesicular stomatitis.

Finally, the injection subcutaneously of a small amount of lymph from a suspicious case into a susceptible animal is usually followed by clinical symptoms in a few days if it is foot-and-mouth disease. In some quarters it is contended that several capsules filled with suspected lymph and administered by the mouth is more likely to result in the appearance of the evidences of foot-and-mouth disease if the lymph is virulent.[1] In the absence of other facilities, the crude method of first scarifying the labial mucosa of a susceptible calf with a wisp of straw and then rubbing into this surface some of the suspected virus may be resorted to.

Vesicles appearing simultaneously on the udder and feet with those in the mouth are frequently observed in conditions other than foot-and-mouth disease.

FOREIGN BODY GASTRITIS

A very common ailment of cattle that the veterinarian is called upon to treat is that form of gastric disturbance resulting from the presence of foreign bodies in the fore-stomachs. With an early clinical diagnosis it might be possible to surgically remove the offending object, and thus save the animal's life.

Simulates Other Digestive Disorders

Unfortunately from the standpoint of diagnosis there are other digestive disorders in cattle that are readily confused with foreign body gastritis, such as "overloading of the rumen," atony of the fore-stomachs, etc. In our work we have always found a history of the condition of more than ordinary importance.

A history of sudden onset of digestive trouble with no demonstrable cause is of the greatest significance.

Stiffness of Gait Suggestive. The Tartar Emetic Test

If furthermore the animal shows pain, as evidenced by groaning and stiff gait on making short turns, on going down hill, or when arising from a recumbent position, our suspicions are greatly strengthened.

Some European veterinarians contend that stimulation of rumen peristalsis by the administration of a therepeutic dose of tartar emetic will cause the animal to show gastric pains if a foreign body is the causative factor.

Upward Pressure Behind the Xiphoid

In our practice we have frequently resorted to strong upward pressure against the xiphoid cartilage of the sternum, and if this elicits expressions of pain, to infer that a gastric traumatism exists. During the examination, the practitioner must at the same time eliminate "overloading of the rumen," which is also a suddenly occuring digestive disturbance but in which it is usually possible to demonstrate a condition of plenitude, with dullness on percussion.

ATONY OF THE FORE-STOMACHS

Furthermore, another rather common ailment, "atony of the fore-stomachs," must not be overlooked. In contradistinction to foreign-body gastritis and overloading of the rumen it is slow in its development, has an intermittent course, with no evidence of pain or overloading. It is also our experience that during the early spring months when stable fed cattle are turned out to graze on cold, wet pastures, that acute gastro-intestinal catarrh is rather common. It has a sudden onset, the abdominal region may be painful, but the pain is not so localized as in foreign-body gastritis and this, with a history of chilling of the

digestive organs, is usually sufficient to arrive at reasonably safe conclusions.

BLACK-LEG

In the middle western and southwestern part of the United States blackleg is probably as frequently or more so met with than in other parts of the country. Most laymen of the sections mentioned are so familiar with it that it occasions but little difficulty in its diagnosis.

However, occasionally it becomes necessary to distinguish between blackleg and other diseases due to gas-forming micro-organisms. From the clinical standpoint malignant edema has caused us more trouble than any other ailment in which subcutaneous gas formation is a symptom. As points of importance, it is well to remember that blackleg becomes less and less common as the age of the animal increases; under two years of age is the general rule, though in our clinic its presence in a nine-year-old cow was established. As a general rule, however, the malignant edema patient is of more advanced age. Blackleg develops more rapidly than malignant edema, the swellings are more emphysematous, while more edematous in malignant edema. Again, in blackleg it is particularly a muscular affection, while malignant edema involves or shows a preference for connective tissue. If the affected area is incised it will be found to contain in blackleg a dark red, foamy fluid, having an odor of rancid butter, and with underlying blackened muscles, while in malignant edema the fluid is colorless or greyish red, and the muscles but slightly discolored.

ANIMAL TUBERCULOSIS

From conversations I have had with veterinarians and from a perusal of veterinary, agricultural and lay publications, we cannot but help being impressed with the tremendous interest now being taken in the question of animal tuberculosis. For its successful ante-mortem diagnosis the tuberculin tests command outstanding prominence, and should form the basis for recognition of this disease. Here again we are confronted with the fact that we are frequently asked to express an opinion as to the possibility of a certain disease being tuberculosis without having had an opportunity to apply a test.

Enlarged Glands Suspicious

The disease practically always develops insidiously, though this is not strictly speaking a characteristic of it. Our clinical examination must, to a considerable extent, be confined to the lymphatic system, especially the subcutaneous nodes. It is highly suspicious of tuberculosis when these are enlarged, if they are not adherent to the skin, and if they do not break and discharge. The tuberculous lymph node does not usually, as in actinomycosis for example, cause infiltration of the immediately surrounding tissue. It is always advisable to palpate abdominal lymph glands by a rectal examination. Possibly actinomycosis, among the commoner diseases, is as likely to cause confusion as any in attempting the clinical diagnosis of tuberculosis. For this purpose it may be necessary to make an exploratory puncture into the swelling with a large caliber hollow needle. The thick, sticky nature of actinomycotic pus with its glistening, yellowish particles usually visible to the naked eye is sufficient to differentiate the condition.

If the disease has lodged in the tissue of the mammary gland, tuberculosis is usually to be suspected only when the supra-mammary lymph glands are simultaneously affected, and here again the practitioner must exercise due care to avoid confusing actinomycotic abscesses with enlarged glands; the fixed location of the glands is of course the guide. It is the writer's belief that with the foregoing facts in mind, the practitioner will be in a better position to express an opinion, that can, if necessary, be clinched or refuted as the case may be by a tuberculin test.

ABORTION

At this time I also want to make a statement regarding bovine infectious abortion, and possible non-infectious forms. To the best of my knowledge there are no means of distinguishing clinically with any degree of certainty, between the two conditions. It is claimed that the brownish discharge with an admixture of whitish bodies is in a measure characteristic of the infectious form. There is too much danger that confusion and disaster will follow an attempt at clinical differential diagnosis, and the only safe guide to follow is the old established and oft reiterated maxim to "consider all forms of abortion as the infectious form until it has been demonstrated to be otherwise." The veterinary practitioner cannot afford to give his clients any other advice.

HEMORRHAGIC SEPTICEMIA

I cannot close this paper without taking up, though very briefly, the question of hemorrhagic septicemia. There is very much of a question in my mind whether the disease occurs with as much frequency as some diagnosticians contend.

Has Become a Blanket Diagnosis

I am inclined to the belief that it has become somewhat of a blanket diagnosis. This statement is based on the fact that in our laboratories we are not usually able to confirm a field diagnosis of hemorrhagic septicemia. It is well to remem-

ber that hemorrhagic septicemia, immaterial of the form of the disease, is practically always a sporadic or enzootic disease and only very rarely epizootic. In some instances a mistake in the diagnosis might be followed by the gravest results. I refer to the fact that clinically there is some resemblance between the edematous form of hemorrhagic septicemia and anthrax. Both diseases frequently have such common symptoms as bloody diarrhea, with swellings in the subcutaneous tissues of the throat, neck and dewlap.

It might be well to remember that hemorrhagic septicemia is more prone to affect cattle and hogs; while anthrax is not partial to hogs, though sheep are commonly affected. Here again the laboratorian should be called upon.

Though it is beyond the scope of my paper, I cannot refrain from cautioning laboratorians to be exceedingly careful in basing a diagnosis of anthrax from the discovery of anthrax-like organisms in tissues that have undergone some putrefaction, even though the suspected organism rapidly kills inoculated guinea pigs. In putrefying tissues, anthrax-like organisms develop, and at the same time if anthrax organisms were originally present they would diminish to complete extinction as putrefaction advances. The foregoing does not apply to fresh specimens.

In concluding this paper I fully realize that it has shortcomings, depending upon the angle from which it is viewed by the critic. The information contained herein was compiled very largely with the idea of avoiding certain pitfalls in clinical diagnosis that are constantly menacing the practitioner located in the average agricultural community. The author has found most of the facts of value in his diagnostic work in rather an extensive college hospital practice, where for the sake of our embryonic veterinarians it is always desirable to give accurate reasons for making a diagnosis, and where it is not usually desirable nor advisable to avoid making a diagnosis on account of a lack of clarity in the symptoms. It is hoped that it may also contain food for the mature veterinary mind represented in this audience.

(1.) Lebailly (Rec. de Med. Vet., August, 1922) proved that the mouth issues of cattle affected with foot-and-mouth disease are not virulent four days after the apearance of the first vesicles. Test lymph must therefore be obtained from a recently affected case.—Editor.

The Warble Fly

The observations regarding the life-history of the fly which were published in 1914 have been confirmed, it having been definitely established that the newly-hatched maggots gain access to the host's body by penetration of the skin and not *via* the mouth.

Muzzling Not Preventive

It was again found that muzzling actually increased the average number of warbles found in the experimental calves. By licking itself an animal dislodges a number of the eggs.

Feeding calves with large numbers of maggots (100) failed to infect.

In experiments in which maggots hatched out artificially were placed on the skin, and eggs themselves were placed on the skin and kept in place by bandages, negative results were obtained.

Clothing the Body No Help

On the other hand, calves which were protected by clothing, leaving only the hind legs exposed to the attacks of flies, showed maggots the following spring. The experiment further proved the migration of the maggots from the hocks, or below, to the backs. It was not found possible to trace the migrations of the young maggots from the skin to the esophagus, where they are found in their "second stage" from October until February.

Larva Has Five Stages

The larva appeared to pass through five phases of development. The pupal stage ranged from 46 to 32 days, decreasing as the season advanced.

Nicotin Washes Cause Alarming Symptoms

During 1915, washes composed of pure nicotin and linseed oil in proportions ranging from 1 to 0.25 per cent, were tried. The 1 per cent was found to be very effective, but it produced alarming symptoms in some of the animals and its use was discontinued. In 1919, experiments with washes containing tobacco powder and lime gave promising results.

The Tobacco Treatment

In 1921, departmental experiments were carried out with a wash containing 4 lb. of tobacco powder, 2 lb. of lime to 1 gal. of water. In the majority of cases one dressing was given, with the result that 78 per cent of the maggots were killed. In those cases (37 in number) in which two dressings were given, 89 per cent of the maggots perished.

The SO^2 Treatment

A more successful treatment still was the use of sulphur dioxid gas applied under pressure

(with impermeable covers over the animal's backs) for a minute. By this means, which had previously been employed and had resulted in the destruction of 93 per cent of maggots, 96 per cent were killed. The method, however, is not applicable on a large scale.

As yet no dressing has been found which is effective for the prevention of oviposition, but experiments are being continued.

—Veterinary Record

Pitfalls in Practice*

By J. X. Parent, Foley, Minn.

It is not my intention in this paper to tell you how to make diagnoses and treat cases, but to relate a bit of my experience with reference to the pitfalls in practice.

I have chosen actual cases, which demonstrate pitfalls, rather than just enumerate them.

Scrutinize the Syndrome

Since we must depend solely upon objective symptoms we must develop a sense of observation that will enable us to pick from the symptoms complex those phenomena that are misleading. I believe there are combined symptoms in nearly every case as pathogomonic as the muscular rigidity of tetanus if we were only able to select and read them. When about to make a diagnosis, how often I have discovered some symptoms that changed the diagnosis to an entirely different one! We meet pitfalls because we are not careful enough.

SOME PITFALLS IN COLIC CASES

I have selected colic because it is often difficult to diagnose and because it brings the veterinarian to many pitfalls.

One of the first cases that let me down hard, and one I never will forget, was a six-year old gelding that had been working every day. I arrived at 7 P. M. The animal had been sick two hours. Showed improvement for half an hour. The character and amount of feed and water were not abnormal. The horse showed a dejected expression, slight sweating and some trembling of flank muscles. Peristalsis in lower bowels; eye normal; heart about normal; pulse full and strong. I made a diagnosis of acute indigestion and pumped a quart of oil, an intestinal antiseptic and anti-fermentative, with two gallons of tepid water, about 110 degrees F., into the stomach. The horse immediately became more distressed. Two hours later, I passed the tube into the stomach and washed out all I had pumped in and some feed and more fluid. After washing the stomach with two pails of tepid water and not leaving much in this time, I gave a sedative. As he seemed very much improved, I left.

Autopsy Reveals Gut-Tie

I was called the next forenoon to make a postmortem examination and found a gut-tie about three feet from the stomach. To a keen observer, with some experience, the passing of the tube the second time and getting back what was first put in the stomach, along with the fact that filling the stomach caused distress, and the fact that the stomach was not engorged, should have been a good reason to make a diagnosis of complete obstruction or even gut-tie, especially when verified by a rectal examination.

Two Cases of Internal Melanosis

Case No. 2: A gray mare, aged ten years, colicky symptoms for past twenty-four hours, no pulse, weak heart, membranes very pale, pain not very severe. General condition good, but very weak. Rectal examination revealed one kidney twice the normal size. Melanosis was suspected. Urine was examined and found inky. Diagnosis: hemorrhage, due to melanosis, and verified by postmortem examination. The spleen was about the size of a water pail, and had ruptured. There were no tail tumors.

Case No. 3: Practically the same as above case with very large tumor extending from right kidney backward into the pelvis until it brought pressure enough on the rectum to interfere with the passage of the feces. Diagnosis: melanosis. Prognosis: total.

Cystic Calculi in a Colt

Case No. 4: A six-months' old colt, showing considerable pain, getting up and lying down continually, puffing, sweating, and trembling. When standing, he would push against the manger. Peristalsis, normal. My first thought was an obstruction with Ascaris megalocephalus. On raising the tail, I noticed an enlargement in the region of the urethra, which proved to be a calculus in the urethra, just back of the scrotum. I removed the calculus and informed the owner there were probably more in the bladder but

*Read before the Minn. Vet. Med. Ass'n., Jan. 10, 1923.

owing to the colt's age, it would be difficult to remove the others until he developed enough to insert the arm into the rectum. In about three weeks another one appeared; this time I operated and removed about two ounces of calculi from the bladder.

Cystic Ovary in a Mare

Case No. 5: A mare, colicky for about three days. Would eat and drink. Feces and urine voided regularly and normal as far as could be observed. On rectal examination, I found a large cyst on one ovary. I informed the owner that I thought the animal would recover in about a week. It was more than two weeks before she was better, but has never been bothered since. I have had three such cases in my practice and while I found a cystic ovary in each case, I sometimes wonder if my diagnosis was correct.

Intestinal Tumor Involving the Kidney

Case No. 6: A three year old gelding, continually straining as if to micturate. Temperature 106°, fair condition, would eat at times and bowel movements apparently normal. Rectal examination revealed a large mass in the region of the right kidney which could not very well be examined. I informed the owner what I had found and believed he would soon have a funeral. On postmortem examination there was an extensive enlargement, with the small intestines crossing through it. The right kidney was completely involved. The whole thing was a mass of fibrous tissue filled wtih pus pockets and bowel ingests.

Rectal Explorations Important

While these are just a few such cases I have had in my practice, I believe they are sufficient to show where many of the pitfalls of diagnosing colics lie. A systematic rectal examination is of great importance in the correct diagnosis of colics and other intra-abdominal and pelvic disorders.

Advocates the Stomach Tube

I wish to say just a word for the stomach tube and pump. In acute indigestion and engorgement of the stomach, I believe the stomach tube and pump can be utilized to better advantage than all other methods of treatment. When the stomach becomes engorged, bringing pressure on the "U" shaped duodenum and pressing against the elliptical opening of the esophagus into the stomach, it is easy to understand how impossible it is for the contents to escape. By what other method can relief be had as quickly and as easily as with the tube and pump and a couple of pails of warm water? The lavage of the stomach in acute indigestion will save sleep. Try it. Pumping in large volumes of water will help impaction cases considerably. It can be used to assist in making diagnoses. In a large number of cases in which I have used it, I have never had any undesirable results.

Hints on the Diagnosis of Colics

A few of the many things to look out for in examining horses and cows showing colicky symptoms are:

First: Has the patient been in good health previously, or has it been suffering from some infection such as influenza, distemper, etc.? If so, do not forget all the possible things it might be as a result of the previous illness.

Second: Horses sometimes get very colicky following an accident. I have had two cases of ruptured diaphragms in runaways and others cases that soon recovered. The cause of the colicky symptoms I am unable to explain.

Third: The temperature alone, without other symptoms taken into consideration, does not mean much.

Fourth: Horses poisoned, especially with caustics, will show colicky symptoms.

Fifth: Becoming thoroughly familiar with the different character of peristalsis is valuable in diagnosis and prognosis.

Sixth: Examine pregnant mares for labor pains before treating for colic.

Seventh: Cows kicking at their belly and lying down and getting up is not always just cow colic, but may be one of several conditions, such as torsion of the uterus, excessive peristalsis, some sharp foreign body penetrating, renal or cystic calculi, gut-tie, etc.

A few conditions encountered in dealing with pregnant animals are:

DROPSY OF THE AMNION

Case No. 1: A cow with a greatly distended abdomen. Owner had not noticed anything wrong until the previous day, when he stuck the blade of a knife into her stomach and as he said, "Nothing came." A case of hydrops amnion. A catheter was passed through the cervix and over thirty gallons of fluid syphoned. The neck of the womb was packed, and left forty-eight hours, when the calf was delivered. This condition might be mistaken for flatulence.

Case No. 2: A client came into my office, informed me of a mysterious case as follows: A cow was due to calf but instead of having a calf she passed a whole barrel of water. I informed him the calf, or what should have been one, was still in the uterus if she had not passed it unnoticed. He was positive she had not. I examined her and had considerable difficulty in

even reaching the back of the calf with the end of my fingers. With the aid of instruments the calf was delivered. Although this condition is not at all rare—perhaps all are familiar with it—a score of complications can result from it that could be treated without first correcting the dropsical condition.

TORSION OF THE UTERUS

Torsion of the uterus might be mistaken for cow colic unless a vaginal examination is made. I have had five cases in my past practice, three of which were corrected out of four attempts. In one case, the cervix was well dilated and the nature of the torsion such that the fetus was delivered without much trouble, after which the torsion disappeared. The other, a cesarean section, was attempted. On opening the abdomen it was found full of a sero-sanguinous exudate and the uterus so badly inflamed the cow was killed without proceeding further.

There are two methods of correcting torsion of the uterus, either of which I believe will work out the same. One is hanging, and the other is rolling on back.

RUPTURE OF THE UTERUS. PROLAPSE OF THE UTERUS

A ruptured uterus is occasionally met with in practice, sometimes as early as two months before parturition time. A rectal examination, in my experience, will reveal the rupture. The more common ruptures, however, are those encountered during parturition and if not diagnosed before starting a delivery, the veterinarian is blamed for the rupture.

Failure to remove all the telescope out of the horns of the uterus in returning an everted uterus will cause trouble, both in keeping it in the cow and in the way of complications. Once a uterus has been properly replaced and douched with tepid normal saline until it contracts, you need no measure of support to retain it, unless there is extreme looseness of the vaginal walls, in which case a truss will be necessary.

Horse Collar Makes a Good Truss

A word about trusses: Of the several methods of applying trusses, the one that has proven most practical in my experience, was copied as I observed it applied by a farmer, and consists of a horse collar, about fifteen to twenty feet of small rope and a few strings. The rope is doubled and laid across the loins of the cow, each rope is then brought back between the udder and leg and passed up along the tail and tied over the loin to the rope that crossed the loins, then brought forward and fastened to the collar. A few strings are then tied across from one rope to the other over the vulva. It looks neat, is practical, and is always in place.

PREMATURE LABOR PAINS IN MARES

Premature labor pains in the mare are misleading and unless the veterinarian is careful might be treated for some form of colic, when the mare may soon abort, revealing the real trouble, or the pains pass off and the cause never be known.

The administration of large doses of turpentine or aloin physic balls to pregnant mares is liable to cause them to abort, especially if the animal is driven some distance afterwards.

I shall relate to you one experience I had with an aloin physic ball, given to a horse at my office and driven eight miles over the roads immediately following. The horse was given the ball at three P. M., and died the next morning at eleven. After the horse was dead, the owner informed me of what happened, stating he had noticed his horse was colicky, but did not pay much attention to it. I held an autopsy and found the stomach badly distended with gas, also the evening feed still in it. The contents of the large bowels were very fluid but there was no gas in either the small or the large ones. Some enteritis, but not observable on the peritoneal surface. Indirectly, the physic was the cause of death, along with the use and care of animal following the administration.

VENTRAL SWELLINGS IN COWS

A good example of carelessness might well be exemplified in the case of an enlargement under a cow's belly, which we examine and decide is an abscess, hygroma, hematoma, rupture, tumor, or swelling from some other cause. I once had enough confidence in my ability to differentiate these enlargements, and when lancing seemed to be indicated, I just ripped them open. However, the nature of these enlargements varies so much that differentiation is not always possible, so now I usually cast the animal before cutting into it. If it proves to be a rupture or a hematoma with profuse hemorrhage, I can then handle the animal with less danger than when it is standing. Besides, the owner will not suspect that I did not know what I was doing if it so happens that I was mistaken in my original diagnosis.

Advises More Frequent Resort to Casting

I believe we should cast animals more often than we actually do, yet I do not wish to leave the impression that I advocate casting in all forms of minor surgical cases as there is a certain amount of danger connected with casting an animal. However, acrobatic surgery should be the exception and not the rule.

THE PITFALLS OF ABORTION DISEASE

I wish it to be understood that I am not reflecting on any part of our scientific knowledge concerning abortion disease, desiring only to report my experience with the use of bacterins on over a thousand cows treated, and the pitfalls I have met. I also trust that this will be well discussed, that others will relate their experiences also, and that we may come to some decision as to whether or not we are justified in using them.

In my first two years' experience with bacterins I had less than a four per cent loss on nearly three hundred cows treated. I became so enthused that I scarcely bothered the farmer with sanitary measures. These results would make any one feel enthusiastic.

In the next six months, I had three herds from which I apparently got no results form the treatment, and from one herd, little or no results from the second treatment. I know other veterinarians who were so enthused with good results that they, like myself, thought sanitary measures were not necessary. Then, there are veterinarians who do not believe in sanitation at all.

Abortion Problems Not All Alike

In my practice, I have had a number of clients who have asked me to treat their cows with the same thing that I treated Mr. A's. Such a request is embarrassing because one is not positive of getting as good results as Mr. A did. I have attempted to study the disease from every angle and have found that the condition of the herd is the basis on which to plan treatment. After getting all the possible information one is in a better position to say whether bacterins are indicated or not. It might be thought better to try out certain sanitary measures first, which sometimes clean up herds with small losses, while in others I resorted to bacterins before I got through. When used this way, I have never been disappointed.

I have been in herds where preparations other than the bacterins had been used and after doing what was requested, I would leave, making no comments upon the treatment unless asked, at which time they are usually ready to let me work out the problem.

Now it might be inferred that sanitary measures and bacterins will always give you 100% results. This is not so, for in some instances I have had losses; peculiarly, in two instances, I had heavy losses, while other herds cleaned up with little or no loss.

Causes of Variable Results

There are a number of factors which might have a bearing on these cases:

First: Are our bacterins always potent? I have proved beyond all doubt, to my own satisfaction, that the biologics we use are not always dependable.

Second: The susceptibility of the animals, the number infected at time of treatment, and the pathologic state of the generative organ.

Third: The virulence of the infection. I believe where there is a highly virulent infection, the resistance of the animal cannot be raised enough to withstand the attack. I believe in most cases the infection is of rather a low virulence, varying, I believe, somewhat with: (a) The condition of the animals and their susceptibility. (b) The habitat and condition under which kept. (c) The place and mode of the spread of the infection.

From my experience I find that cattle commonly kept are more easily rid of the disease than those highly specialized. This, I believe, party verifies some of the above statements.

A Layman's Observations

A few things I have been told, by reliable stockmen, which have actually happened are:

First: Three instances where pregnant cows and heifers purchased from clean herds, taken into infected herds, aborted in from eight weeks to four months.

Second: In a number of cases where cows and heifers from an infected herd were sold and bred in a different herd and no trouble developed. I also know of cases where this result was reversed.

Third: Bulls sold from infected herds never caused any trouble in the herds into which they went.

CONCLUSIONS

First: The bull is a small factor in the spread of abortion, unless breeding clean cows soon after breeding discharging ones.

Second: Cows do not ordinarily harbor the infection for a period of more than two months after aborting, unless becoming pregnant again before that time.

Third: The infection is spread most always through the discharges of cows infected, from the time the cervix dilates enough to allow the discharge to escape, until she is rid of the infection, the discharge contaminating the feed of pregnant cows.

Fourth: If it were possible to carry out perfect sanitation the disease could soon be eradicated, and the use of bacterins would not be necessary.

Fifth: Theoretically, the use of the flavines at regular intervals, should inhibit the migration of the B. abortus from the digestive tract to the

uterus. My experience with these dyes has been very limited, but I believe there is some benefit derived from their use.

Sixth: Cows aborting should not be bred for a period of two months following aborting and then as soon after as possible or else there will be trouble in getting them to breed, bringing pitfalls, against which Dr. Boyd has so often warned us.

Some "Don'ts." Minerals Recommended.

A. Don't forget to inform the owner of the dangers connected with such work.

B. Don't press out a yellow body when examining for pregnancy because the owner tells you the animal has not been bred for three or four months and you are sure she could not be more than six weeks pregnant. Breeding dates are not always correct. Hold them for a later examination when you are not sure.

C. Don't be too positive about the prognosis of any sterility case.

D. Don't forget to examine the semen of the male.

E. Don't forget dairy cows, highly developed and fed entirely inside, might not be getting enough minerals.

A PRACTICAL SUGGESTION ON ABORTION CONTROL

Dr. A. Eichhorn, discussing the splendid address on abortion disease delivered by Dr. C. P. Fitch of the University of Minnesota at the annual meeting of the Iowa Veterinary Medical Association laid down a "plan of action" that is worth the serious attention of all veterinary practitioners. The plan is sound, for the reason that it gives the practitioner a definite point of departure for control measures about to be instituted in any given herd. Until now, the practitioner brought face to face with an infected herd in the field has been lost in the perplexities of the abortion problem on account of not having a starting point that would suit the particular situation.

The plan is to determine to which one of the three following classes a herd belongs:

1. A disease-free herd that can be built up, and maintained as such, by resorting to the complement-fixation test.

2. Infected herds, wherein the infected animals can be effectively segregated.

3. Infected herds suitable for the living-vaccine treatment.

The first group is pronounced free from disease only after the complement-fixation test has so indicated, and it is kept free by the application of the test to all animals purchased. The herd bull in this case must not serve as the community bull and the cows must not be sent away to be bred without due regard to the dangers entailed.

The second group presupposes the existence of establishments wherein segregation can be enforced in reality. These will be rare, because there are indeed few farms where it is practical to enforce the complete isolation of one part of the herd from the other. This would quite naturally mean two farms between which there is little communication.

The third group calls for the use of living vaccines for all non-pregnant heifers and cows.

SULPHURATION FOR SHEEP SCABIES

In Germany sulphur dioxid fumegation is used as a treatment of scabies in sheep. It is used in the same way as horses were treated for mange in France during the war. That is, by confining the body in a hermetically sealed chamber with the head exposed and subjecting it to an hour's exposure to sulphur dioxid gas at a concentration of about 4% for clipped sheep and 4.5% for unclipped. As many sheep can be treated at the time as there are chambers to receive them.

The merits of sulphuration in the treatment of horse mange was proved during the war, when it became one of the dependable methods of ridding horses of this troublesome war scourge. It was objected to by many American veterinary officers on the grounds that it was tedious as compared with the dipping vat system wherein the treatment is but a procession of affected animals through the dip. The fact, however, that the one actually cured a higher percentage of animals while the other was uncertain finally brought preeminence to the sulphuration plan. This experience suggests the expediency of sulphuration for the treatment of mange in small flocks.

Hemorrhagic septicemia is a serious disease of sheep.—H. Preston Hoskins.

Johne's disease can be diagnosed with a fair degree of accuracy by testing with Johnenin, a biologic similar to tuberculin made from the acid-fast bacillus that produces the disease. In this test the post-injection temperatures must be taken 30 minutes after the injection and continued every two hours for twelve. The reaction temperature is from 104° to 107° Fahr.—Ferguson.

Canine Anesthesia in Veterinary Practice*

MORPHINE—ATROPIN—ETHER (OR CHLOROFORM) SEQUENCE

By J. P. Foster, Minneapolis, Minn.

A SAFE, and at the same time a convenient method of producing general anesthesia in dogs has long been sought by practitioners of canine medicine. The purpose of this report is to describe a method which should allay the apprehension so often experienced by the surgeon when inducing anesthesia in canine patients.

Chloroform, ether, and A. C. E. mixture have been employed as general anesthetics by some practitioners with fairly good results. At the same time it must be admitted that each of the agents named, as usually administered, have proved far from satisfactory. This dissatisfaction is evidenced by the fact that a certain proportion of the veterinarians of North America are performing operations, both minor and major, upon their canine patients under no anesthetic whatever. During the past few years I have visited practitioners in a number of states and provinces in the United States and Canada, and find that many of the older practitioners have abandoned the use of anesthetics, while some of the younger members of the profession have never begun their use. In my opinon this is not on account of the expense involved, but indicates that a majority of the practitioners who operate without first administering a general anesthetic are aware of the added risk and feel justified in omitting the procedure even though the operation is prolonged, and the patient suffers considerable pain.

Preliminary Anesthetics

Several years ago I noticed in a French periodical devoted to veterinary science, a formula which was said to give good results in laying the foundation for a safe and successful anesthesia with chloroform. This formula, which consisted of a solution of morphin and atropin, was expressed in the metric system. Its administration prescribed the weighing of the patient, and the injection hypodermically of a certain fraction of a cubic centimeter of the solution, per kilogram of weight of the dog.

Dr. Cecil French, of Washington, D. C., in his work entitled "Surgical Diseases and Surgery of the Dog", makes the following statement: "If atropin is administered prior to the chloroform, the vagus is never inhibited and cardiac arrest does not follow. Rudolf and others have made similar observations. Hence, we have in atropin, administered bypodermically previous to chloroformization a very convenient antidote, one which reduces all risk of vagus inhibition to a minimum. If a little morphin is combined with the atropin, the primary excitant period attending the chloroform administration is suppressed, but the atropin should be in amount somewhat in excess of what would be given alone to provide for the mutual neutralization of the two alkaloids.

Morphin-Atropin Solutions Hypodermically

"A suitable mixture for this purpose is made in the following proportions: Morphin sulphate three-quarters of a grain, atropin sulphate one-twentieth of a grain, distilled water one drachm. Of this, small dogs take five to ten minims, medium-sized dogs, ten to twenty minims, and large dogs, twenty to thirty minims, hypodermically. Some twenty minutes later the chloroform should be administered. In this manner very little of the latter drug suffices to induce a profound and safe narcosis of considerable duration."

Based on the foregoing suggestions, I conducted some experiments on dogs with a view to trying out this method of producing anesthesia. In a total of 100 experiments, a record was kept of the sex, age, breed, and weight of the dogs, as well as of the time of the injection of the morphin-atropin solution, and the time of beginning the administration of the general anesthetic. Nearly half of these experiments were carried out on animals undergoing surgical interventions, such as hysteroöphorectomies, dislocations, or amputations of limbs (following accidents), castrations, and dressing painful injuries.

The remainder of the experiments were conducted upon dogs in an apparently normal state of health, with a view of arriving at a fairly definite dosage of the morphin-atropin solution. About one-half hour should intervene between the injection of the solution, and

*Read at the 26th annual meeting of the Minnesota Veterinary Association, Minneapolis, January 10, 1923.

the administration of the general anesthetic. In many of the cases it was possible to rouse the patients temporarily, even as soon as an hour after operation, but when left undisturbed, they almost invariably lapsed into a stupor, or profound sleep, which usually persisted for several hours.

Standard Solution and Dosage

The solution adopted for these experiments consisted (except as noted later in exceptional cases) of morphin sulphate, one grain; atropin sulphate, one-twentieth of a grain; distilled water, one drachm. The method of determining the dosage mentioned has been alluded to. However, as the solution is made up in quite a large quantity according to the formula given, it is somewhat objectionable from the standpoint of expense when used in single doses (it should be freshly prepared each time), unless the operator happens to be familiar with the metric system, and is able to estimate readily and accurately the small quantity of the alkaloids required for a single dose. On the other hand, the dosage is more definite than the scale advised by French, who, as already stated, arbitrarily divides dogs into three classes: small, medium, and large. To be sure, he allows more or less variation in the dosage by advising a sliding scale, such as, "five to ten minims"; "ten to twenty minims"; and "twenty to thirty minims", for the three classes mentioned. This is a very good rule, and in most cases the dose may be decided upon along these lines in a very satisfactory manner. However, in the case of a very small dog, or a very large dog, some other method of arriving at the proper dosage must be devised. It also is true that a dose that would produce the desired effect upon some thirty-pound dogs might have very little effect upon some fifteen-pound dogs. As a usual thing canine patients tolerate large doses of morphin, so there is little danger in giving a very small dog ten minims of the solution, and a very large dog will easily stand sixty minims so far as the morphin in the solution is concerned. This does not hold true with atropin, however, and a dog which would take sixty minims of the solution very nicely with reference to the morphin, may show considerable uneasiness, and symptoms of belladonna poisoning, from the atropin. To overcome this difficulty, I suggest that in the case of a large dog, one that would easily stand a grain of morphin, two different solutions be used in combination, that is, thirty minims of the standard solution (containing morphin, one grain, and atropin, 1/20 grain) and thirty minims of a solution minus the atropin. This would make the dose, morphin sulphate, one grain; atropin sulphate, one-fortieth of a grain; distilled water, one drachm.

Symptoms Produced in Dogs by the Morphin and Atropin Solution

Usually these are noticed in a very short time (depending somewhat upon the size of the dose)—in some cases—in susceptible individuals—within a period of two minutes from the time of the injection. At first the patient assumes a more or less anxious expression, and appears to be ill at ease, swallows repeatedly, possibly retches slightly, and very *rarely* vomits. Breathing is somewhat accelerated at first, and there may be short periods of panting. Pupils show dilatation within a very few minutes, and soon are markedly dilated.

If standing, the hind quarters may sway slightly from side to side, and perhaps start to drop, as a result of flexion of the principal joints of the hind legs. Repeated attempts to maintain the standing position are made before finally sitting down. The patient now sways slightly from side to side, nods head, partially closes the eyes, and may even flex the knees slightly as though about to sink to the floor, but recovers its equilibrium, braces its front feet, and appears to be making an effort to resist the approaching effects of the drugs. As the action of the solution becomes more marked, the animal finally succumbs, sinks to the floor, and is soon stretched out and asleep.

Respiration at this stage is slow and deep. The patient may be roused if disturbed, but immediately falls asleep again when left unmolested. In some cases the animal may whine more or less while the effects are coming on. This probably is due to the atropin which in particularly susceptible animals acts as a mild deleriant.

Atropin Prevents Emesis

Morphin alone almost always produces emesis in the dog. In these experiments, only 8 out of a total of 100, vomited. This is probably due to the fact that the atropin in the solution counteracts the emetic action of the morphin. This action may be explained as follows: (1) Atropin depresses the functions of sensory nerve endings, and allays irritability. (2) It is antispasmodic in its effects upon involuntary muscles; in fact, paralyzes them and thus prevents gripping, and relaxes spasms of hollow organs. It depresses both the un-

striped fibres and their motor nerve endings. (3) As in the case of the heart, atropin paralyzes the vagus endings in the stomach, thus preventing vomiting; which is proved by the fact that section of the vagi prevents vomiting. These actions of course apply to medicinal doses of the drug.

In referring to the actions of morphin and atropin, Hoare states that "By combining the two agents we find that one may prevent or relieve certain effects of the other when employed as anodynes. Thus, atropin prevents the nausea, depression, dyspepsia, and constipation which are apt to occur after the administration of morphin."

Winslow states that "Belladonna aids the action of opium and yet is antagonistic to it. It assists opium in its anodyne action and lessens nausea, indigestion, and constipation following the action of the latter drug. Belladonna and atropin are antagonistic to opium in stimulating the brain and respiration, and increasing peristalsis. Small doses of belladonna combined with opium do not interfere with the soporific action of the latter, notwithstanding the exciting influence of the former upon the brain."

After Effects of Drugs Used in These Experiments

So far as the atropin and morphin solution was concerned, the only after effect worth mentioning was due to the mydriatic action of the atropin. Dilatation of the pupils of the eyes persisted for several days in some of these patients. It is probable that in these cases the doses were excessive. Morphin is very likely to cause more or less constipation, so that it is advisable to administer a dose of calomel, or oil, following its use. This procedure is especially indicated in those cases in which free elimination is to be desired, and in which constipation would prove disastrous.

When chloroform, or ether, was employed following the atropin and morphin solution, the anesthesia produced was more profound, of course, and of much longer duration. However, no disagreeable after-effects were noted; probably due to the fact that so small an amount of these agents was necessary to produce complete anesthesia.

Legal Phase

At the present time there are laws in force in some states, prohibiting certain operations upon domestic animals unless an anesthetic first has been administered. A similar law exists in parts of Canada. In view of the activity of the different Humane Societies, and Societies for the Prevention of Cruelty to Animals in many parts of the United States and Canada, it is fair to presume that before long other states and provinces will enact similar laws.

Conclusions

In the atropin and morphin solution administered hypodermically, we have a safe and satisfactory anesthetic for even quite serious and painful operations. In abdominal operations this solution should be followed by chloroform, or ether, to insure the proper relaxation of the abdominal muscles so essential in surgical procedures in this region. On account of the hypnotic effect of the morphin, the later administration of the general anesthetic is readily accomplished without the usual disagreeable struggling and whining of the patient.

A dosage of one minim of the standard solution per pound, up to thirty pounds, is recommended as the minimum. To dogs which exceed this weight, give one minim of the modified solution (the same as the standard solution minus the atropin) per pound in excess of thirty pounds. Thus, in the case of a fifty-pound dog, give 30 minims of the standard solution, and 20 minims of the modified solution; to a sixty-pound dog, 30 minims of the standard solution, and 30 minims of the modified solution (which amounts to morphin, one grain, and atropin, one fortieth grain) but in *no case* give more than this amount, regardless of the size of the dog; that is, consider this as the maximum dose.

If practitioners will give this method a fair trial, I am sure that they cannot be but pleased with the results. If for any reason it does not work well the first time that it is tried, and the patient whines, or struggles during the operation, rest assured that there is something wrong with the dosage, or the technique of the procedure. Perhaps the patient required more of the solution, or possibly the administration of the general anesthetic may have been suspended during—or even prior—to the point that would correspond to the stage of excitement ordinarily passed through when a general anesthetic is not preceded by a cerebral depressant of proper dosage. If practiced with determination "the combination" soon will be learned. Canine surgical operations then will be performed with satisfaction to both the client and the operator, and instead of dreading to deal with a whining, struggling animal,

strapped to a table, the veterinarian will approach these operations with confidence, and a clear conscience.

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BUELL FARM QUEEN AND HER ELEVEN PUPPIES

Buell Farm Queen (No. 300725 Am. Kennel Club) is the property of the Buell Farms, Lake Geneva, Wisconsin, breeders of Scotch collies and a client of Dr. C. H. Cleland, assistant to Dr. T. H. Ferguson of that city, through whose courtesy we are able to reproduce what appears to us to be the height of efficiency in the art of photographing dogs, as well as the height of efficiency in breeding and the successful raising of large litters.

Note the uniformity of size and health of each pup of this large litter and the patience displayed while perched on a plank awaiting the snap of the camera; and also the watchful instinct of the mother during this unusual ceremony.

What we would like to have now is the photograph of the man who can scrutinize this picture and still remain a hater of dogs.

Some Hog Immunization Problems from the Practitioner's Point of View*

By Roy E. Kluck, Forreston, Ill.

THESE problems are in some sections some of the most important with which veterinarians have to deal today as on it depend their well being from a financial standpoint, for with a curtailed practice due to large numbers of tractors and automobiles being used for motive power equine practice has fallen so low that a veterinarian has had to qualify and do a practice that includes all lines of livestock and poultry, to enable him to eke out an existence.

I won't say this is all bad as it has caused the veterinarian to study and enlarge his practical worth to his clients. There is no argument as to who possesses the scientific knowledge to do this work properly and successfully as it should be done.

Some of the causes of why the attempt to take the immunization of the swine out of the hands of the veterinarian has been made may be enumerated from what I believe to be their importance as: Farm bureaus or preferably farm advisors; unethical serum producers and jobbers; unethical veterinarians who seldom or never attend association meetings or do anything to uplift the veterinary profession; post-vaccination troubles; overcharging, which I believe is the least important; lack of publicity and credit will also be touched on.

Farm Bureau and Farm Advisor

The laws authorizing federal aid for agricultural extension work does not grant to a farm advisor authority to act as agent to buy and sell goods of any kind to the farmers nor to solicit members for the farm bureau or to do veterinary work. There are others here who are better posted on the federal grant than I am. How many farm advisors are obeying authority in their work? Very few.

After a few years' trial of the agricultural extension work through farm bureaus it seems as if they were not able to stand on their own legs and something had to be done to keep them going and incidentally to provide a larger salary for the advisor who had formed a big opinion of his own value in that short time. What was the result? County appropriations had to be kept up to help out and this looks like class legislation.

Made Promises to Get Members

A campaign was started for more members in which the farm advisor took an active part and all sorts of promises were made as to what benefits the members would get. Everybody was profiteering except the farm bureau members and advisor. We must ship our own grain and cut out the profits of the local buyer, the commission man and so on down the line, stopping just before they got to the consumer. Did they put these men out of business? No. Those dealers are nearly all in business yet and in some localities two systems are being supported where one formerly did the work at less expense, and the people pay the bill.

What Did the Livestock Commission Men Do?

I have been told of cases where stock from a local buyer and a shipping association were consigned to the same commission firm on the same day and the local buyer's shipment sold for more money. Why? What about grades? Giving a shipping association grades below those of a buyer results to the buyer's good and in the end who pays the bill? The coal dealer, feed dealer, and local merchant all came in for their share, but how many quit business? Very few, but they raised their prices and were compelled to make their profits off of a smaller amount of business and who paid the bill?

We veterinarians came in for our share also and it has been hard on some of us, but at that is it any worse or as bad as in the nineties? Some know and some do not, how blue everything looked then but they lived through it, so can we who are here today.

What Are Some of the Farm Bureau Members Saying Today?

I think you will agree with me when I say that in many counties lots of them never renew their membership.

Don't understand that I am unalterably opposed to the farm bureau movement as I am not for I think they are capable of doing much good but the main trouble seems to be in the misconception of the duties of a farm advisor as construed and practiced by many of them.

*Read before the Ill. State Vet. Med. Ass'n., Dec. 6, 1922.

Farm Advisor Has Done Harm

The farm advisor's attempt to do a veterinary practice has in places done a lot of damage as you all know but does it look as if we will have to put up with it for all time? I don't believe we will.

As to a plan that has been suggested for putting veterinarians on a salary to do a general practice, do you think for one minute such a plan would be successful?

Public Service Not Practical

If a veterinarian was employed to do a general practice in his community every client who paid five cents toward his salary would expect to call him for every little thing that went wrong and he would have so many calls to make that he would be unable to care for all of them, where now under the fee system he may be nearly starving.

Then, too, lots of his clients would want to be first and cause much dissatisfaction so it does not seem to me that a plan of this kind would ever come to pass within our lifetime, and judging from the number of veterinary students enrolling under the educational requirements as they are today it will never come to pass, for when one has spent the time, effort and money required to get a veterinary education he will feel unable to go out for the fees now collected by a majority of the veterinarians consequently the supply of veterinarians will diminish or not keep up with the demand to meet the expansion of the livestock industry.

Don't Forget the Good Farm Advisors

We must not forget that we have some good farm advisors and that they are having a hard time to keep in their proper place on account of others who are trying to branch out into lines for which they are not fitted.

We had one veterinarian in my county who was a member of the farm bureau and called in the farm advisor to ask what was wrong with his corn and after looking wise and investigating a little acknowledged his inability to do so. A neighbor who happened to be present said he could tell him and pulled up a few hills of corn, showing them worms working at the roots.

May Become Midwives

This same advisor can and does vaccinate hogs, test cattle for tuberculosis and almost any kind of work outside of his line up to the corner the M. D.'s have on confinement cases and if he keeps on unchecked he will soon be taking those over. A man should know his own trade pretty good before he branches out trying to give information publicly on others.

It seems as if about 75 per cent of the farmers who vaccinate their own hogs once do not do it again but come to their veterinarian the next time as they seem to want to load the uncertainty on some one besides themselves.

Use Your Skill

If the immunization of hogs by the laity is to become a common and universal procedure as a matter of evolution, do you think it would do any good to use extreme measures to prevent it? I don't.

Combat it peacefully with your superior knowledge of animals' diseases and I believe you will win out eventually.

As I understand it the educational requirements of a farm advisor are his four-year agricultural college course in addition to his preparatory work so he cannot know very much along veterinary lines. Of course this does not include advisors who have had a veterinary education, but the number of these is very small.

Agricultural Graduates Good Clients

I have agricultural college graduates who are my best clients as they know their veterinary education does not fit them to treat their animals without veterinary services and often call when it is not necessary; in fact, more so than other clients as a rule for they are more observing and know more quickly when an animal is sick.

Advisor Gets More Pay Than Veterinarian

I would like to get what a county agent gets for vaccinating hogs—$1.50 to $2.40 per hour for an eight-hour day, which is much shorter than a farmer's day, and all expenses paid.

It is said that a superior knowledge deserves high pay and shorter hours but I don't see where very many vets come in on that, but it seems a farm advisor does and at the same kind of work.

In Whiteside county the farm advisor was doing vaccinating of hogs and tried to get the veterinarians to use the serum handled by the farm bureau, so a meeting was held at which the veterinarians agreed to do so, asking in return that the advisor refrain from vaccinating, demonstrating or selling serum to the farmers but he would not do that so the veterinarians walked out.

One veterinarian who was using serum

bought through the farm bureau was also using serum from a firm that sells only through veterinarians, and in some cases the farm advisor stated that he was getting that kind of serum for the farmers so as to strengthen his position.

The firm in question investigated and found out that this advisor was representing that he had bought this serum direct when the fact of the case was that the veterinarian who was doing the vaccinating had ordered it and he was given a chance to quit one or the other so he decided to quit farm bureau flat. Why?

Recent Stephenson County Developments

A slogan of "Buy from concerns that are ethical toward the veterinarians" should be adopted individually and adhered to in so far as possible by every member of this association and I am sure it would do much toward getting a fair deal.

Unethical Serum Producers and Jobbers

We have plenty of them. Too many. Why? Just for the almighty dollar. I expect to get censored for discussing this phase of this question, but let the serum companies clean their own house as it will save us the bother. I have the greatest contempt for the concern which sells veterinary products to the laity direct or indirect when they should know that it is not for the best interests to the livestock industry to do so.

And worse still are those concerns that advertise a policy of sales to the licensed veterinarian only, then put a stock of goods where it will be sold to any one who wishes to buy. We have some of that kind, too.

There are firms that want the veterinarian to use their products so as to get a reputation established for them, then they will turn around and sell to the laity, saying their goods must be good or their home veterinarian would not be using them.

Should Obey Our Code

Gentlemen, I believe that any one who is not guided by our code of ethics when it comes to selling to farm bureaus, county advisors and the laity or will put up the excuse that they have nothing to do with the sales policy of the concern with which they are connected don't deserve our support.

Unethical Veterinarians

Unethical veterinarians, veterinarians who seldom or never attend association meetings or do anything to uplift their profession are in a class by themselves, in that they do not take advantage of the only means of education now available to the practitioner: reading of veterinary journals, attending meetings and mixing with their fellow veterinarians.

Among them are found most of the men who use poor technique, and try to scab a job away from their competitor and get the poor results that do so much harm.

Often they cut the price below a living fee then try to get a profit out of a job by using poor serum and small dosage with the result that the client's losses are more or less heavy, then try to blame it to the flu or some other condition. This is a place where a man who does that kind of a job should be good at producing an alibi. Unfortunately we are not all good at that and would rather do a good job, establish a good reputation for good work and fair dealing and keep the other fellow out this way. It can and is being done all over the country for good honest work seems to win out in a long run.

All of you can point to instances where a man sets a fair price, does a good job and was called when more work was to be done.

These conditions caused by poor technique lead farmers and farm advisors to think that any one with a few minutes' instruction can do as good a job as a trained veterinarian and we will have to admit they are partly justified for doing so but the one thing wrong is that they forget quality in looking at the price, and also judge the whole profession by the work of these few.

Such attempts at immunization of hogs (for that is all they might be called) very often have to be covered by other veterinarians to stop the losses that follow.

Meet, Read and Progress

A meeting of the veterinarians of your county, district or state in your home town will, if given proper publicity, do much good and is not harmful advertising.

In conclusion, I would say that because of our desire to keep the immunization of swine against cholera where it rightfully belongs, don't refuse a client services just because he vaccinated his own hogs, for 75 per cent of them only do it once; give him service that is up-to-date and charge a price that will bear home to him the fact that he has employed a professional man. Give him the best you have for the quality of your work will be remembered long after he has forgotten the price.

The Treatment of Intestinal Parasites with Powders

By Maurice C. Hall, Associate Editor.

Reading VETERINARY MEDICINE for January, 1923, page 29, the article on Treatment for Swine Parasites, etc., I wish you would be good enough to give me some advice.

I have tried capsules in worming hogs and have had some bad results. Santonin and calomel are too expensive to use. I have been using 15% powdered areca nut and 85% epsom salts. The dose is two ounces per 100 lb. live weight repeated three or four times at 12 hour intervals until the bowels are cleaned out.

I would like to try American wormseed. Would you recommend a mixture of areca nut and wormseed and what proportion, along with epsom salts? Could you tell me the percentage of oil of chenopodium in wormseed and what would be the dose of the seed as an effective vermicide?

A worm powder mixed in a small amount of feed seems to take better with hog raisers in my vicinity than giving drenches or capsules.

Any advice you can give me along this line will be greatly appreciated.—A. E. M., Ont.

Combination Not Valuable

Reply: I would not regard a combination of oil of chenopodium (oil of American wormseed) and areca nut as particularly valuable in removing worms from swine. Oil of chenopodium alone is the most effective anthelmintic of which we are aware for removing ascarids from swine, and ascarids are the worms which are probably most common and injurious to swine as a rule and the ones for which treatment is usually instituted. Areca nut has but little value in removing roundworms and is especially indicated for the removal of tapeworms. As swine, for all practical purposes, do not have tapeworms, there is little to be gained by adding this drug to chenopodium for administration to these animals. Areca nut has the further disadvantage that it is most effective when freshly ground, gradually declines in efficacy from that time, and ultimately becomes inert. It should be freshly prepared for use each time to get the best results.

The Oil Alone Dependable

The only way to obtain dependable results with chenopodium is to use the oil, and even in the oil the most effective anthelmintic constituent varies considerably in amount. The amount of oil in the plant varies with the soil, the part of the plant used, and other factors. Bruening states that the plants yield 1.5 to 2 per cent of oil, but Chevalier says the seeds may yield 0.6 to 1 per cent of oil and the leaves 0.35 per cent of oil. Garrigues states: "According to Engelhardt, 13 ounces of the seed gave 3½ drams of volatile oil." This would be over 3 per cent. According to a Maryland distiller, the plant gives oil at the seeding time, but the seeds themselves are a small factor in the quantity of oil, and the quantity of oil produced varies greatly with different lots of plants. It is evident then that the variation introduced by the use of the seed instead of the oil is itself an objection to the use of the seeds, as such variation predicates variable efficacy.

Shows Seeds and Plant Less Reliable

In the literature on the use of chenopodium there are some references to the use of the seeds. In human medicine the bruised seeds have been given in doses of 30 grains in an electuary; this would probably contain a very small amount of oil.

Cecil French in 1896 has the first reference to the use of chenopodium for dogs that I have seen. He states: "The powdered seeds of this fruit made into an electuary with syrup or honey, or enclosed in capsule, may be given in the following doses: Adults, ½ to 1 drachm; puppies, 10 to 30 grains. Or it may be given in the form of the oil (Oleum chenopodii, U. S. P.). Dose, adults, 20 to 40 minims; puppies, 5 to 10 minims. To a puppy the latter should be given in emulsion with gum acacia, but adults will bear it in capsule."

Hall and Foster report that they tried giving entire plants, which were in seed and full of oil, in large amounts to 3 hogs daily for 19 days, giving them all the plant they would clean up. They ate the plants readily, but at the end of the experiment 2 animals were still infested and the lack of ascarid eggs in the feces of the other can not be regarded as positive evidence that there were no ascarids present in the third animal.

This treatment must be regarded as a failure, if one is inclined to take cognizance of time and labor costs. These writers also report tests of the dried seeds. Each of 3 infested hogs was given 3 grams of chenopodium seeds and 3 grams of areca nut mixed with the feed daily for 11 days.

As in the first experiment, 2 animals were still infested and the third animal may have been

infested in spite of a negative fecal examination. This treatment is not only unprofitable as regards its efficacy, but it would probably cost more to make it effective than the oil would cost, in addition to wasting time and labor.

Demand for Powder-Treatment Great

The demand for a worm powder or something to put in the feed is quite general in connection with the removal of worms from swine. Swine are noisy and awkward to handle, and few persons care to handle them. However, we have no experimental evidence available showing that anthelmintic treatments of an effective sort can be given in the feed. There are a number of reasons why this is so. The feed offsets the value of the fasting. There is too much variation in dosing where animals dose themselves; some animals may get too little of the drug to remove worms and others may get toxic doses. It is within the bounds of possibility that a satisfactory method of giving anthelmintics in feed to swine will be developed, but we are unaware of such a treatment at present.

The treatment we find most effective consists in the use of oil of chenopodium as given in the January number of VETERINARY MEDICINE. The treatments given in our article there have been shuffled by the printer and should have appeared as follows: The portion from "Treatments for dog parasites" down to "Stomach worms" on page 29 should follow the first paragraph under "Tapeworms" on page 30.

Alleged Sweet Clover Poisoning; Its Relation to Hemorrhagic Septicemia

By Professor L. H. Pammel, Iowa State College of Agriculture, Ames, Iowa

FROM time to time various statements have been made that sweet clover is poisonous. This, in the past, has been largely attributed to the presence of cumarin. The United States Department of Agricuture in 1919 records an alleged case from a ranch in North Dakota. It was reported that sheep had apparently been poisoned from sweet clover screenings. The report stated that 500 pounds of these screenings had been fed in the afternoon to 500 ewes, and the next morning 4 of them were dead—the flock in general was in good condition. Dr. Dwight Marsh and Glenwood C. Roe made an investigation of the matter which was published in a circular.[1] The authors review some of the previous cases of sweet clover poisoning.

Carrey, of France, in 1888, reported the deaths of three horses from paraplegia. Experiments made with rabbits, using seed, caused death; later Collas, also of France, reported the death of 10 sheep containing sweet clover in the pod. He also reported the illness of a cow which had eaten cooked seed of sweet clover. Recovery occurred when sweet clover was not used in the ration.

Mr. Maiden, of New South Wales, in an article printed in the Agricultural Gazette of New South Wales, made the statement that Melilotus parsiflora will paralyze sheep and horses. The authors quote a number of other references on the matter. Evidently all of these, including my own referred to by the authors, is based on the work done by Carrey and Collas.

Marsh and Roe made some experiments with screenings from North Dakota, and from Salt Lake City. A number of sheep were used in the experiments, the authors found that all of the sheep remained in good heath and did well. It was found, however, that the bran was the better feed. They concluded that sweet clover screenings were not poisonous, and that the screenings can be used to advantage, but are not as good as bran. So much sweet clover has been fed in various sections of the country without injury, that, in my judgment, it would seem advantageous to feed it.

SCOFIELD'S OBSERVATIONS

Another article[2] with a brief account of a disease in cattle stimulating hemorrhagic septicaemia due to feeding sweet clover was written by Dr. Frank W. Scofield. The author gives an account of what he says is apparently a new disease, occurring almost exclusively among cattle fed on sweet clover hay or ensilage. The author looked for the organism of hemorrhagic septicemia but could not find it.

[1] No. 82, U. S. Dept. of Agriculture, Contrib. Bureau of Animal Industry, 1920.

The disease seemed at first to be communicable as several animals in the same stable became affected and died. In his account he considers the manifestations of the disease as it occurs sporadically.

"First, let us consider the disease as it occurs sporadically throughout the province during the last few months; then later the experiments which have been conducted to determine more exactly the nature of the disease and its relationship to sweet clover.

Finds Two Types

"Most of the cases investigated can, for convenience, be grouped under one of two heads, (a) hemorrhagic type with the presence of subcutaneous swellings, (b) the anemic type where animals have died following an operation such as dehorning or where death has resulted apart from any such contributory cause.

"In cases included under 'A', the animals usually seem perfectly well, when suddenly a swelling appears, small at first but increasing in size until it may be several feet in circumference and from four to six inches in elevation. These swellings usually occur over the lumbar region but may be found in any part of the body. The inside of the thigh and around the shoulder joint are common sites for swellings. The nature of the swelling is of great importance in making a differential diagnosis.

"In practically every case seen or reported, there has been no evidence of gas, therefore an absence of crepitation. There may be pitting on pressure, this being especially true when the swelling has formed slowly or happens to be in a dependent part. In such cases there is more edema and little hemorrhage. When the swelling has developed very quickly, or is of comparatively recent formation there will be fluctuation if the mass is properly palpated. This is due to the presence of non-coagulated blood and serum. When the case goes on to recovery, the swelling becomes firm and gradually subsides. A most important point is the absence of heat and pain, clearly indicating the non-inflammatory nature of the lesion. Thus by a careful study of the swellings, one can largely eliminate such diseases as anthrax, malignant edema and hemorrhagic septicemia.

Syndrome of the Hemorrhagic Type

"However, of greater significance is the fact that in every case observed by the writer, there has been no elevation of temperature. The pulse is always accelerated and weak if the hemorrhage has been extensive. The swellings consist of blood or plasma of varying quantities. The visible mucous membranes are blanched. The sick animal while not eating heartily, will frequently nibble a little until a short time before death, when marked weakness is noticeable, the animal lying down and dying quietly. Stiffness of gait, constipation, posterior paralysis and other conditions may occur, but the above description covers the average case."

Diagnosis of the Anemic Type

The anemic type he describes as follows: "A diagnosis of the anemic type (group B) can occasionally be made while the animal is still alive. Clinically all that can be observed is the pallor of the mucous membranes and a certain amount of lassitude. The veterinarian is not likely to see such cases unless the owner has dehorned animals suffering from anemia. Death usually follows dehorning within a few hours.

Characterized by Hemophilia

"Bleeding is continuous, yet the quantity of blood lost is relatively small, but due to the decreased blood in the body, death results. Examination of the blood shows that the hemoglobin is greatly reduced and the clotting time is markedly delayed. To the naked eye the blood which keeps seeping from the base of the horn, is thin and watery, and fails to clot, or clots very slowly. Some interesting cases of the anemic type were accidentally discovered by a farmer, who, following a time-honored custom, cut a slice of cartilage from the ear of each yearling."

Relations of Sweet Clover to the Disease

The relation of sweet clover to the disease is a perplexing one, which, the writer states, is difficult to solve, but he is firmly convinced that it is due to sweet clover. When the feeding of sweet clover ceased the disease stopped. "In two instances, when, against orders, the sweet clover was again fed to the stock, the disease reappeared. The essential characteristics of the disease can be produced in rabbits by feeding them with samples of sweet clover or ensilage, that have caused the disease in stock. Some still maintain that the disease is hemorrhagic septicemia.

"In some ways the diseases are similar, but of course, hemorrhagic septicemia and botulism are very fashionable at present. Both cultural

*The Canadian Veterinary Record 3:74.

and animal inoculation tests have proved negative for hemorrhagic septicemia in all cases.

Two Interesting Observations

"On once occasion five centimeters of blood from a typical case in a steer were injected into a three weeks' old calf with no results. Another interesting observation is that the calf of a cow fed upon sweet clover hay may be born with the disease while the mother escapes. I have seen this on two occasions.

"Everywhere one fact has been demonstrated —that young animals are more susceptible than old. Why should hemorrhagic septicemia, which is a pasture disease, and little known in this province, suddenly appear in many localities as a stable disease? A strong argument against sweet clover as a cause is the fact that many herds of cattle have been fed on sweet clover without suffering from the disease. One can answer this by saying that almost every farmer's sweet clover is different, sown differently, harvested differently and, in some cases, a different variety of plant. The question is, why is some sweet clover dangerous and some harmless? As far as I know, this question, which is one of great importance, remains unanswered."

Organotherapy With Case Reports

By J. F. Shigley, Associate Editor

A careful study of medical literature together with experimental data indicates that there is a normal balance maintained in the body through the action of all of the endocrine or ductless glands. Should this balance be disturbed by the failure of one or more glands to properly function there is a marked effect on the entire physical structure. This may be indicated by loss of weight, general physical appearance, disposition milk and butter fat production. These changes in structure and function have been discussed in previous articles.

Your attention is called in this article to two conditions common to breeding animals, namely retained placenta and structural changes in the ovarian tissue characterized by firm, fibrous tissue and absence of the menstrual or heat period.

Retained placenta presents certain problems to both the breeder and the practitioner. To the breeder it is an indication of a condition which points to a probable delay in conception or permanent sterility, with the resultant marked effect upon the value of the individual as a breeder or producer in case of the dairy cow. In the case of the thoroughbred or registered mare it may mean a loss running well up into the thousands of dollars through the inability of the animal to reproduce.

To the practitioner there is the problem of the removal of the placenta and the after care of the animal. In cases of abortion where the placenta is firmly adherent the condition offers a real problem.

Careful examination of these cases may show the presence of a corpus luteum in one ovary, together with a large, pendant uterus exhibiting marked lack of tone; the placenta being firmly adherent. Its manual removal is practically impossible without serious injury to the uterine mucosa and the future breeding life of the animal.

Removal of the corpus luteum when present is the first step in handling these cases. The subcutaneous injection of extracts of the sexual maturity group are indicated and exert a marked effect on uterine tissue. The response is prompt and efficient, leaving the uterus comparatively clean and firm.

Numerous cases have been reported substantiating this, one of which follows:

Case No. 1. Thoroughbred mare; was brought in from the paddock, placed in a box stall to await examination for pregnancy. The attending veterinarian was busy for about two hours examining other animals in the same stud. When the groom went to the stall for the mare he found she had aborted. Examination showed the membranes to be firmly adherent and impossible to remove manual. Fifteen cubic centimeters of extracts of the sexual maturity group were given subcutaneously. Three hours later the placenta came away, leaving the uterus clean and firm. The animal showed no marked physical effect following the abortion.

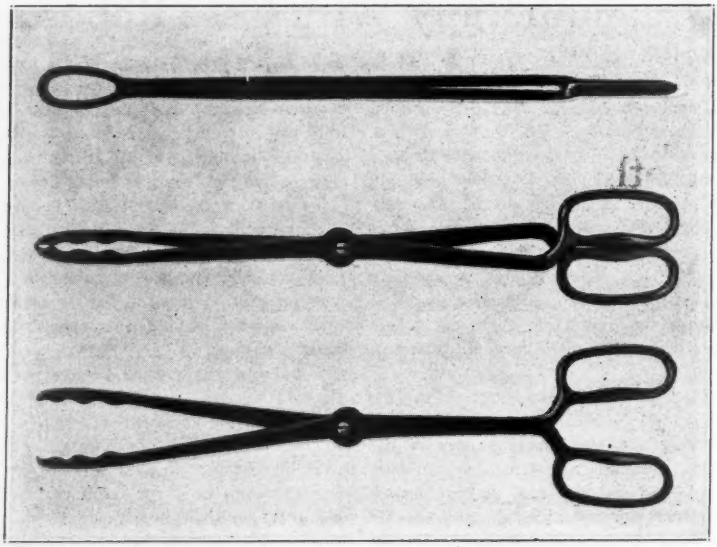
Case No. 2. Registered Holstein cow having history of normal calving. Developed firm, fibrous ovaries; menstrual periods infrequent, finally ceasing altogether. At the time of examination the animal had not been in heat for about one year. The general body structure was indicative of a lack of a proper endocrine balance. The owner was persuaded to retain the animal in the herd for a short time during which period she

was given 10 c.c of extracts of the sexual maturity daily for two weeks. The animal then showed signs of heat and an examination showed the presence of a cyst in one ovary.

This clearly indicates that the stimulation of the sexual maturity group was sufficient to result in a marked change in ovarian tissue and a return of the menstrual period.

In conclusion, therefore it is evident that treatment of various endocrine disorders is based upon the maintainence of a proper balance between the glands normally functioning during that period of the life of the animal. In retained after birth or placenta and ovarian inactivity the balanced extracts of the sexual maturity group are clearly indicated and their use secures results as shown in actual practice.

Dr. C. L. Whittington's Cross-handled Pig Forceps

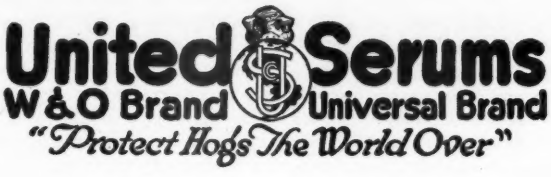


Dr. Whittington of Waterloo, Iowa, has invented a pig forcep that deserves special mention among the "Useful Inventions for Veterinarians". The forcep has a head so constructed as to prevent any possibility of grasping the uterine walls, and the shafts are so shaped as to narrow down when the jaws are open.

Dr. F. U. Steel, Muskegon, Michigan, Will Supply Your Wants in Foxes

(Turn to 252)

DEPEND ON



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"Practitioners' Ills"

By Henry Hell, V. M. D., Wilton Jct., Ia.

IF we are to judge from the evidence seen on every hand, there is something wrong with the veterinary profession in general and the practitioner in particular.

That we should suffer depression with all others during this past war re-adjustment was to be expected and must be considered when taking inventory of our present day conditions.

Booms, slumps, panics, and other allied conditions present themselves from time to time to all people. They must be considered transient, with faith in the future, and hope that the morrow will dawn brighter. The ills of the practitioner are not wholly of a transient nature. Some of the conditions affecting us today have been forming for the past decade, and activity on our part will be necessary to set them aside. Some of our present-day conditions were wished unto us by those who thought, that by so doing, they would better their individual positions. Other conditions came with the natural trend of the times.

Some of these changes were of such a nature as to almost completely revolutionize the practitioner's business. Those of us who failed to meet these new conditions promptly and effectively lost our standing through our own shortcomings.

Horse Practice Reduced from 90% to 20%

The principal change that time brought us, was the change of the position of the horse 15 years ago, to his position of today. We will not dwell on this farther than to say that whereas the horse used to pay us 90% of our total earnings, he now barely pays 20%. From 65% to 70% of the horses in the farmers' hands in this territory are past 10 years old; and breeding practically at a standstill. The return of the horse is certain, but never to its former position; some classes are doomed forever, while others will nearly assume their former numbers, but as a whole we cannot hope for more than a 50% return from the horse. But just as sure as we have seen the going of the horse, we are going to see the coming of the cow.

Advantage Seen in Influx to City

The U. S. census for the past 20 years, shows that all gain in population has been in the cities, while the rural districts have been either at a standstill or at a loss. That means that every city dweller is a consumer of dairy products. The increase of the milk-cow population will be in direct ratio to the increase in city population.

Economists place our ultimate saturation point in population at the two hundred million mark with possibly 90% of this ultimate increase going to the cities.

Considering further our country's position relative to wealth, natural resources, etc., as compared to the rest of the world, it is not unreasonable to suppose that we are at the threshold of an industrial era unprecedented in our history. Increase in city population and in industry means increased demand for dairy products, then by this same line of reasoning, is it not fair to suppose that the Corn Belt is about to become the greatest dairy section in the country.

So while the practitioner may feel pessimistic as to the future of his equine practice, he has every reason to believe that in the future his cattle practice bids fair to make up for the falling off of the horse practice.

Swine Practice a Big Factor In

Hog practice has become a dominating factor in the practice of most Iowa veterinarians. Within the last 12 years, hog practice paid us very little, almost nothing. During this time a great deal of research work had been done on hog diseases, and a great deal of light shed on various conditions of the hog, but we must still regard the study of most of our hog diseases as still in its infancy. In the past 12 or 14 years we have learned to control hog cholera with a fair degree of success; yet we cannot lose sight of the fact that we have further proficiencies to make to overcome the various unexplainable conditions that arise from time to time in every man's hog cholera work.

The hog industry is one of Iowa's basic industries. Attempted production is at full capacity; every good farmer tries to raise and mature as many hogs as practicable. Disease in too many instances spells the difference between a bumper crop and no crop at all.

Poultry is a coming industry and many practitioners like myself have failed to meet this newcomer half way, and bid it welcome to the veterinary realm. It is up to those of us, who have not given the time that we should have done to

Turn to page 272

*Read before the Iowa Veterinary Medical Association, Jan. 17, 1922.

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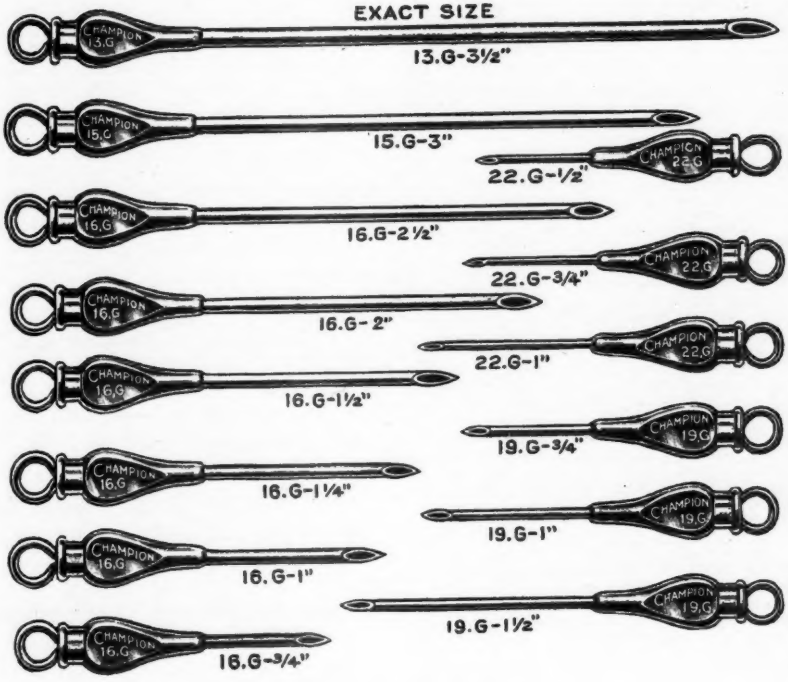

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FOR SALE—Kyle's Operating Table. Latest model. Fine condition. Price, $100.00. Address Dr. R. C. Calkins, Humeston, Iowa.

I HAVE A FEW PAIR OF REGISTERED SILver black foxes for sale. This is the center of the black fox industry of the United States. Dr. F. U. Steele, Muskegon, Mich.

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FOR SALE—Veterinary practice in Southern Alabama; large live stock center. Doing excellent business. Best reason for selling. Address No. 722, care of Veterinary Medicine.

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POSITION WANTED—Laboratory technician and diagnostician. Do research work. Can teach veterinary medicine and scientific subjects. Also consider position as assistant—with commercial firm—or teacher. Have six years' college work in agriculture and veterinary medicine. Degrees: B. Sc., D. V. M. Expect M. S. degree. Do general analysis—Wasserman tests, differentiation, etc. Address No. 3161, care of F. V. Kneist, Peters Trust Bldg., Omaha, Nebr.

WANTED—To purchase a high power microscope. Address Dr. T. A. Kragness, 6031 Wentworth Ave., Chicago, Ill.

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has been thoroughly tested in the field and pronounced perfect in all respects. Made of steel. Folds up and can be easily carried in your auto. Weight about forty pounds. Automatically adjusts itself to pigs weighing from thirty to one hundred and fifty pounds.

Holds the pig in a convenient position to administer serum and virus and for operations which you may wish to perform (hernias and so forth). Last but not least, this automatic table makes a hit with your client as well as with you as it saves over half the labor in vaccinating pigs.

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Iowa Veterinary Association

The thirty-fifth annual meeting of the Iowa Veterinary Association, held at Des Moines, January 16-18, was thought by all in attendance one of the best meetings ever held. An attendance of over 400, together with the keen interest in the papers and discussions, made it successful. Visitors remarked this meeting was the largest they had attended in any state. The practitioners took a very active part in the program. The Iowa State College at Ames gave a one day short course for practitioners in the form of a clinic held at the college.

Many good papers were presented concerning forage poisoning of cattle, milk and dairy inspection, purpura hemorrhagica, technic in use of local anesthetics, veterinary advertising, violations of the veterinary practice and livestock sanitary laws, bovine tuberculosis, poultry diseases and care of poultry, caponizing, and swine diseases.

Dr. Niles, of the B. A. I., gave a very interesting talk on "Some Observations on Swine Diseases". Dr. C. P. Fitch, of the Minnesota Agricultural College, presented the subject of "The Present Status of Abortion Disease" in his usual forceful and instructive way. "Veterinary Conditions in Europe" was the title of an interesting talk by Dr. A. Eichhorn. Illustration by stereoptican and motion pictures of the prevention of livestock loss in transit was given by Dr. W. J. Embree of Chicago. A wonderful picture entitled "The Horse in Action" followed a splendid talk by Dr. L. A. Merillat on the horse situation. "Hormone Therapy" was presented by Dr. J. F. Shigley, of St. Paul, who brought out some of the experimental data on gland preparations.

OFFICERS OF THE IOWA VETERINARY MEDICAL ASSOCIATION

Left to right: John Patterson, Hedrick, president; N. E. Busher, Earlham, vice-president; J. S. Potter, Iowa City, executive board member; E. R. Steel, Grundy Center, secretary-treasurer; R. J. Laird, executive board member.

—Courtesy Des Moines Register and Tribune.

In his address President E. A. Buxton referred to the present situation of the Iowa veterinarians as regards the hog cholera serum and virus law, and pointed out the importance of the practitioner as an economic factor in the welfare of the livestock industry of a state that represents an investment of $337,753,700. Dr. W. H. Welch, president of the American Veterinary Medical Association, addressed the convention on "The Horse" and also spoke of some of the encouraging things the A. V. M. A. is planning to do for the practitioner. The fees committee worked out a system of fees which was recommended as a guide and submitted to the association.

The newly elected officers are as follows: President, Dr. John Patterson; first vice-presi-

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But your wish for a satisfactory Worm Expeller to replace prohibitive Santonin has been granted and at a price within the reach of all.

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Oil Chenopodium	7½ grs.
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More Than One-Half Million Sold in 1922
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Directions: Hogs must absolutely be penned up in a tight pen on a clean board or cement floor for 24 to 48 hours, without food of any kind. After each hog has been capsuled give no food for 3 to 6 hours.

Follow by feeding all the oats 50 Hogs will eat dampened with a Solution containing five pounds Magnesium Sulphate.

If the above directions are followed, gratifying results may be expected.

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dent, Dr. N. E. Gubser; second vice-president, J. C. Glen; secretary-treasurer, Dr. E. R. Steel; member executive board (three years), Dr. J. S. Potter; member executive board (two years), Dr. R. J. Laird.

E. R. Steel, Sec'y-Treas.

THE IOWA CONFERENCE

The eighth annual conference for veterinarians was held at Ames, Iowa, January 19, 1923.

For the last three years these conferences have been given over largely to demonstration clinics, and this year's program was presented in that manner. Dean Stange gave the visitors a cordial welcome in his opening remarks and presided over the meeting throughout the day.

The meeting opened with the presentation of three live topics by Dr. W. F. Guard, viz.:

(1) Otitis media in animals; (2) Technique for the use of local anaesthesia, and (3) An improved technique for the operation of umbilical hernia in male pigs.

The subjects were all illustrated by carefully prepared specimens which showed exactly the structures involved and the methods used.

The subject of the cause, symptoms, diagnosis and treatment of otitis media in animals as worked out by Dr. Guard during the last year, we believe, is a new contribution to veterinary literature and is of considerable economic importance. While it seems to be most common in swine, it has been diagnosed and treated in calves, dogs and cats. The technique for the use of local anaesthetics and for the hernia operation is the result of much careful study and holds the secrets for the success of the operations.

This was followed by a discussion of caponizing and a demonstration of the operation by Dr. John Patterson, of Hedrick, Iowa. Some good specimens of capons and slips were on exhibition and some of the birds were autopsied to show the position of the structures. The whole demonstration was very interesting and practical.

Just before noon Dr. C. E. Juhl, of Osage, Iowa, demonstrated the use of the stomach tube in swine to the entire satisfaction and one might well say the amazement of those in attendance.

In the afternoon all assembled at the pathology laboratory where Dr. E. A. Benbrook, head of the department of pathology, and members of his department, demonstrated equipment and methods used in milk and food inspection work. Much interest was shown in this important phase of veterinary activity. Over two hundred cities and towns in Iowa now have some system of milk inspection.

Following this Professor H. A. Bittenbender, head of poultry husbandry, lectured upon the various breeds of poultry, exhibited types, and demonstrated judging and culling poultry. Finally, Dr. Chas. Murray and members of his department presented the subject of diseases of poultry and showed symptoms and lesions of the more common ones to be dealt with by the practitioner.

About two hundred practitioners were present and the interest in the day's work was greater than ever before. Many expressed the desire for a longer course or for more frequent courses. These courses are provided for by a special fund and the veterinary faculty is anxious to provide what the practitioners of the state feel to be their greatest need.

Dr. R. S. Walden, of Lennox, was elected president of the South Dakota Veterinary Medical Association at the annual meeting held at Sioux Falls, January 19-20. Dr. R. M. Ray, of Clark, was elected vice-president and Dr. W. F. Joseph, of Iroquois, was re-elected secretary. Among the speakers were Dr. A. Eichhorn, of the Lederle Laboratories, Pearl River, New York, Dr. Herbert Lothe, Waukesha, Wisconsin, and Professor H. E. Bemis of the Iowa State College of Agriculture, Ames.

AMES ORGANIZES ALUMNI ASSOCIATION

Lieut.-Col. Gould, U. S. A., (retired) was elected president, and Prof. Chas. Murray, secretary, of an alumni association of the veterinary department of the Iowa state college of agriculture, organized at Des Moines, January 17. The organization was celebrated by a banquet presided over by Dean Stange, at which more than a hundred of the alumni attended.

The veterinary department has been in existence since 1879, and has 466 alumni of which 63 per cent graduated since Dean Stange took charge in 1908. It was the first three-year veterinary school in the Western Hemisphere, and existed alone as such for many years while the other schools were growing out of the two-year class.

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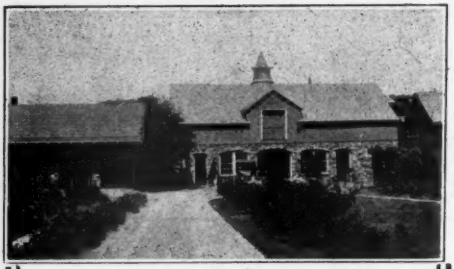

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Equine Abortion Bacterin
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THE MONTREAL CONVENTION

The committee on local arrangements of the A. V. M. A. 1923 convention, which is to be held in Montreal, has been appointed as follows by Dr. W. H. Welch, president of the association:

Fred. Torrance, Honorary Chairman;
M. C. Baker, Chairman;
D. Généreux, Vice-President;
A. A. Etienne;
H. Pilon;
F. T. Daubigny;
G. A. Dauth, Treasurer;
L. A. Willson;
J. H. Villeneuve, Secretary, 266 Craig St., East, Montreal.

Negotiations have already been started for the coming to Montreal of very prominent European practitioners and assurance has been given that both England and France will be represented at the convention.

The committee has also suggested that the 1923 convention be featured as the "Diamond Jubilee" of the association and this will help materially to give a lot of éclat to the convention.

The committee has already decided that a banquet of the good old days should be given, with its accompanying source of enjoyments. The officers do not hide the fact that nothing at all will satisfy them but a record attendance and praiseworthy comments.

The annual meeting of the Wisconsin Veterinary Association was held at Agricultural Hall, Madison, January 24, 25, 26, 1923.

The Nebraska association at the recent annual meeting passed resolutions indorsing the use of anesthetics for all painful operations.

The South Dakota Veterinary Medical Association has 137 members out of a total of 170 qualified practitioners in the state.

The summer meeting of the Colorado Veterinary Medical association will be held at Colorado Springs, in June.

Mayor Coffeen of Stillwater, Minnesota, better known among his confreres as Dr. R. J. Coffeen, was elected president of the Minnesota State Veterinary Association at the twenty-sixth annual meeting held at Minneapolis, January 10-11, 1923.

THE WISCONSIN SHORT COURSE

The first short course for the veterinarians of Wisconsin was held at the state university on January 24, 25, 26. It was given cooperatively by the Wisconsin Veterinary Medical association and the department of veterinary science of the college of agriculture. If the interest shown by those who attended is an index, it was certainly a decided success.

Laboratory and demonstrational work was largely substituted for the usual type of program consisting of formal papers and lectures. This innovation made it possible for those in attendance to perform certain experiments themselves, and to learn, first-hand, some of the newly discovered facts relative to the causes and control of animal diseases. For example, each man took lung tissue from an animal, experimentally infected with *ascaris larvæ*, and placed it between two glass plates; then he examined it with the aid of a microscope and found the living, writhing lung stage of this destructive animal parasite, which later develops into the common large, white, round worm in the intestines of swine.

Those who helped to conduct this short course were Doctors C. H. Covault, veterinary division, Iowa State College, Ames; H. B. Raffensperger, zoological division, United States bureau of animal industry; J. G. Hardenbergh, The Mayo Clinic, Rochester, Minn.; H. P. Hoskins, Secretary-Editor of the American Veterinary Medical Assn., Detroit, Mich.; W. J. Embree, live stock inspection department, Western Weighing and Inspection bureau, Chicago; J. A. Kiernan, tuberculosis eradication division, United States bureau of animal industry, Washington, D. C. The following members of the agricultural college faculty also assisted by presenting interesting and instructive subjects: A. S. Alexander, B. L. Warwick, R. S. Hulce, F. B. Morrison, W. H. Wright, L. J. Cole and E. S. Savage. Others who contributed valuable papers were Doctors Herbert Lothe, Waukesha, Wis., and J. F. Shigley, Beebe Laboratories, St. Paul, Minn. Many of the best known veterinarians of the state led the discussions.

The newly elected officers of the association are: G. H. Harland, president, Pewaukee; C. A. Deadman, vice-president, Madison; O. H. Eliason, secretary, Madison; W. L. Richards, treasurer, Morrisonville.

O. H. Eliason, Sec'y.

Dr. E. L. Quitman addressed the Chicago Veterinary Society February 13 on "Animal Deficiency Diseases and Dietetics."

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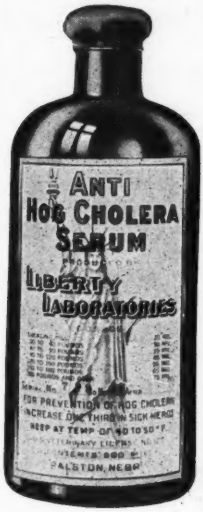

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Zootechnic Notes

By E. Merillat, Associate Editor

The comfortable cow is the highest producer.—Hoard's Dairyman.

The food ration of the average dairy cow is compounded from about three roughages and a highly concentrated grain allowance, with no choice as to what the individual system craves.—Vitamineral News.

To Make Milk More Popular

1. Use sterilized milk containers.
2. Keep the cows and the stables clean.
3. Milk dry handed and with clean hands.
4. Use hooded milk pails.
5. Cool milk to 56° or lower immediately and keep it cool.
6. Eradicate tuberculosis.

One of the Many Posters of the National Dairy Council used to Popularize Dairy Products

—Courtesy of Hoard's Dairyman.

The demand for horses for 1922 was 40% higher than that of 1921, according to Secretary Dinsmore, of the Horse Association of America.

FEED REQUIRED TO FATTEN CARLOAD OF LIVE STOCK

How much feed does it take to fatten a carload of cattle, hogs, or sheep? Here are some figures based on investigations by the United States department of agriculture:

Six hundred bushels of corn and 17 tons of hay will fatten 250 lambs weighing 55 pounds each and make them weigh 80 pounds. This will make 1 double-deck carload.

Four hundred and fifty bushels of corn and 2,750 pounds of tankage or fish meal will fatten 70 hogs averaging 100 pounds, to 200 pounds, making 1 carload.

One thousand one hundred bushels of corn, 10 tons of alfalfa hay, and 5 tons of straw will fatten 20 steers averaging 850 pounds making them gain 325 pounds each in 180 days. This is an average carload.

MILCH COWS NEED MINERALS IN FEED

That milch cows need more minerals, particularly lime and phosphorus, than is commonly found in their feed, is the finding of recent feeding tests at the Ohio experiment station.

The best feeds to supply these elements are clover hay, alfalfa hay, soybean hay, and wheat bran. If plenty of one or more of these is not given in the daily feed, it will be wise to add about one pound of fine ground limestone and two pounds of specially prepared bonemeal to each 100 pounds of grain mixture.

An increased flow of milk may not be noted at once, but the good effects are in the prevention of future decrease in milk production. The minerals may make their best showing in the following year.

The two elements most likely to be lacking are calcium and phosphorus. Limestone carries calcium, and bonemeal carries both calcium and phosphorus. When these are combined in the feed while the cow is dry, it is found that she will store enough to increase production still further during her next milking season.

Semi-Solid Buttermilk Aids Veterinarians in Diagnosing Complicated Diseases

Many veterinarians now realize that using **Semi-Solid** Buttermilk on sick herds quickly cures all minor ailments, thereby leaving clear and distinct the symptoms of the more serious disease, and making it easy to intelligently treat and cure the trouble.

The antiseptic, cleansing, purifying and body-building action of the buttermilk almost immediately straightens out lesser disorders and enables veterinarians to quickly discover the nature of the disease that must be treated.

The remarkable therapeutic value of **Semi-Solid** Buttermilk quickly relieves diarrhea, scours, thumps and other intestinal troubles. Weak and sickly pigs quickly become strong and full of life, soon return to full feed and grow rapidly.

Semi-Solid Buttermilk
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is the constant companion of many veterinarians who make it a policy to keep one or more of the gallon cans of **Semi-Solid** in the back of their automobile for emergency use. Wherever they find a herd that is ailing and that needs the immediate beneficial effects of this remarkable product, they are able to prescribe its use at once.

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Queries and Answers

FATAL COLIC IN A MULE

A mule, six years old, weighing 1200 pounds, after four days on the cars, arrived hungry and was given access to a lot of oats and hay. She was taken sick eight hours later but received no treatment until 16 hours had passed.

Common Attitude of Mule or Horse Suffering from Gastric Distress

I pumped out the stomach and gave the usual line of treatment, but she went from bad to worse and died 18 hours after I first saw her. The point is: Would the mule have recovered had she been treated more promptly, say four or five hours after becoming sick?

I am enclosing photographs taken at the 16th, 18th and 20th hour of the attack.—T. B., Fla.

Widely Dilated Nostrils without Acute Pain Points to an Overloaded Stomach

Reply: There is no doubt that a prompt washing out of the stomach would have saved this mule, granting, of course, that the cause was overeating. The same, however, could not be said of every case of colic, because there are cases of intestinal obstruction that cannot be relieved even when treatment is quite prompt.

Without a more graphic description of the patient's gymnastics, and other symptoms required to make up a pathognomonic syndrome, we would not be justified in venturing a positive diagnosis. However, the fact that she did eat too much and the attitude shown in figure

Lying Down, the Nostrils Open Still Wider, and the Breathing Is Deep and Labored

two, which indicates gastric distress, strongly confirms your contention as to the owner's costly procrastination. An autopsy would have helped.

IS WILD RICE POISONOUS?

I would like information on wild rice. I have put in a dam in a creek and backed up the water for half a mile. I was thinking of sowing wild rice for the ducks and fish, but some say it is poisonous to cattle and that it will spread all over the farm. Is this true? If so, what would you advise sowing?—F. B., Iowa.

Reply by Professor L. H. Pammel: Wild rice is not poisonous. It is one of the most nutritious of foods, which has for hundreds of years been used by the Indians and considered one of the most valuable of plants for ducks. The person who thinks it is poisonous must have another plant in mind.

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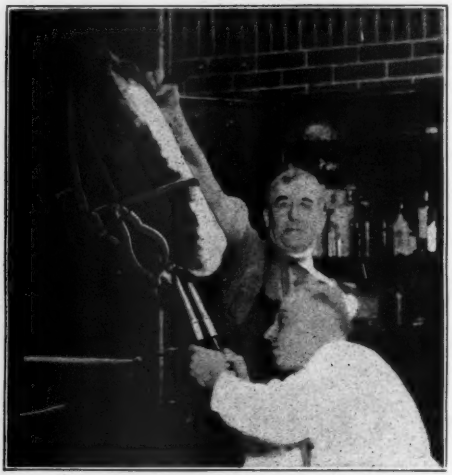
SUBCUTANEOUS EMPHYSEMA FOLLOWING TAPPING OF THE RUMEN

I was recently called to see a badly bloated cow that had been tapped with a paring knife, and entubed with a goose quill to let out the gas. There was an area 12 inches in diameter around the perforation that was puffed with gas, crickling on palpation. A few days later the whole left side was affected, and a week later there was no improvement. The cow has a good appetite, but after eating and drinking she vomits. Normal temperature, and the usual flow of milk. I am afraid of an unfavorable termination and would like to know if a larger incision into the rumen to let the contents escape would not be good treatment. What is the proper treatment and what causes the air to get under the skin?—A. A. Z., Wis.

Reply: Gas accumulates under the skin in these cases because there is a channel between the rumen and the subcutaneous tissue, and no free outlet through the skin. The gas is trapped. The treatment is simply that of destroying the trap by making a large enough incision right down to the peritoneum. In a case a week old, it might be well to take a look at the puncture in the rumen and decide whether or not is is in condition to close up. It is probable that particles of ingesta have flowed into the peritoneal cavity around the perforation and that the inflammatory action has now adhered the rumen to the abdominal wall.

There is no benefit derived in button-holing the skin with a view of evacuating the gas already accumulated. It is trapped by the meshes of the areolar tissue and will not escape.

PAINLESS EXTRACTIONS



By Injecting a Potent Anesthetic into the Infraorbital Foramen a Maxillary Molar Can Be Extracted without Pain

WHAT IS A "NEM"?

What is the meaning of the word "Nem"? I notice it is used sometimes by writers on nutrition, or deficiency diseases. Although not in general use in reading so far as I can observe and is too new to be found in the dictionary, there are some puzzling things in an article I am reading that make me want to get some idea of what is meant by it.—A. G. B., Ohio.

Reply: The "Nem" is a unit of nourishment, just as "calorie" is a unit of heat. It has been used instead of "calorie," because vitamins must now be reckoned with in making purely mathematical calculations on food requirements. The word was used by Pirquet of Austria in apportioning rations for the undernournish children of that country after the war. So far as we are able to determine a nem is equivalent to about one cubic centimeter of raw milk. It was coined from (N)utrition (E)lement, and (M)ilk.

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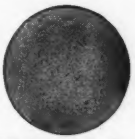

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ARSPHENAMINE AND NEO-ARSPHENAMINE

I have read an article entitled "The Arsenicals" by Dr. N. S. Mayo, in the January issue, and it sounds good to me. I have not seen these preparations advertised by any of the supply houses and would, therefore, like information about where they can be procured.—A. H. W., Ia.

Reply by N. S. Mayo: The arsphenamines have been used very little in the United States for the treatment of animal diseases and consequently there is no definite information as to their specific efficiency.

At present neo-arsphenamine is being tested out by eight or ten of the leading research men in animal diseases in the United States as well as by several prominent practitioners. Just as soon as favorable information is available it will be published.

WANTS TO ABORT A HERD OF HEIFERS

A client of mine has a drove of heifers he wants to keep over until next fall for shipment. A bull accidentally got with them and now he wants the pregnant ones to abort. I have heard of drugs that will bring about this result, but have no information as to their safety nor their dependability for such an important situation.—T. L. F., Ia.

Reply by W. E. King: The Beebe Laboratories have been engaged in the experimental study of certain glandular preparations for some time and have developed four preparations which have distinct value in certain conditions in animals. One of these preparations produces abortion in 80% of pregnant guinea pigs in doses of one to four cubic centimeters at 24-hour intervals. (See article in January issue entitled "Glandular Therapy with Special Reference to Physiological Standardization"). We have not had occasion to try this product, which we call Synergin No. 6, on the large domestic animals for such a purpose as you require, as it is designed for the treatment of non-breeding animals. We believe, however, that this product administered in 10 cu. cm. doses at 24-hour intervals, in the case of these heifers would produce abortion in a large percentage of the herd. They should receive from five to ten treatments, and the manner of producing the abortions would represent a physiological process which would in no way impair the appetite, growth, flesh or other normal conditions. It is well worth trying.

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Write for Annual and Catalog

DOSE OF CARBON TETRACHLORID FOR DOGS

I note on page 29 of the January issue that the dose of carbon tetrachlorid is given as 0.3 cu.cm. per kilogram of body weight, which I take to mean the regular dose. On page 30 the same article states "1 cu.cm. per kilogram will sometimes cure whipworms." I cannot understand if 0.3 cu. cm. per kilogram is the regular dose why 1 cu.cm. should be spoken of as the larger dose. I have given up to four drops per pound of live weight and have not had any bad results.—E. J. R., N. Y.

Reply by Maurice C. Hall: The question you raise appears to be based on a slight misunderstanding. The *dose rate* of 0.3 cc. per kilo is smaller than the dose rate of 1 cc. per kilo. The *total dose* for a dog of average size (22 pounds or 10 kilos) would be 3 cc. at a dose rate of 0.3 cc. per kilo (2.2 pounds) or 10 cc. at a dose rate of 1 cc. per kilo. The dose rate for general practice is 0.3 cc. per kilo, or 3 cc. for a dog of average size. While dogs appear to tolerate much larger doses, this drug like any anthelmintic, will develop toxic effects in susceptible animals if given in large doses, especially if the animals are very weak. Recent developments indicate that the use of saline purgatives two hours after carbon tetrachlorid is of value in preventing even the very mild symptoms that occasionally develop in such susceptible animals.

Owing to a printer's error, the information on pages 29 and 30 of the January number of VETERINARY MEDICINE has been set in the wrong order. The portion on page 30, beginning with "Another treatment" and continuing to the end of the article, should follow the expression "pups two weeks old" before the paragraph beginning "carbon tetrachlorid."

To the Editor: VETERINARY MEDICINE is like a standard text-book to me. Please find check enclosed for my renewal.—L. W. B.

Shades of Mart Steffens! The Veterinary Journal criticises Dean White's Principles and Practice of Veterinary Medicine because it does not mention the oxalic acid method of treating azoturia.

To the Editor: I am just up and around the house after an eight weeks' illness and on reading the new issue of the journal, I cannot help but say that VETERINARY MEDICINE is like Coué's slogan: "Every day in every way it's getting better and better."—R. F. R.

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ECHINACEA

I would like some information about echinacea. Where can it be obtained, what does it cost and what is the dose for the tincture for the different animals? The druggists here do not seem to know anything about it.—J. F. D., N. B.

Reply: Echinacea is known by the botanical term of E. augustifolia. It is a North American plant and is used by the eclectic school of medicine as an alterative and internal antiseptic. It can be procured from any wholesale house handling Lloyd's fluidextract sold under the name of eclectic drugs. The best preparation is said to be "Ectafolta." The dose of the tincture for the horse is about an ounce and of the fluid extract, one half that amount. Experts have shown that the curative value of this drug has been exaggerated. It gained prominence in the veterinary profession through Dr. Finley Ellengwood, an eclectic physician, who was professor of materia medica in the Chicago Veterinary College in the early '90's.

FRIGHT DISEASE OF DOGS NOT CONFINED TO THE SOUTH

I wish to get your opinion on a peculiar condition we are having among the hunting dogs of this district (Northern Wisconsin).

These animals are stricken with a type of fits while hunting, always starting during violent exercise. They start to howl, throw the head up and backward as if scared and will sometimes run a mile in this condition. If touched they will howl as if hurt, but when the spell is over everything seems normal. When exercised again the spell returns. After two or three spells of this kind they have regular epileptic fits, foaming at the mouth and stretching out in convulsions.

I have attributed the conditions to worms, but worm treatments have had no ameliorating effect.

I have had about 20 cases, all in the same neighborhood and most of them have been hunting together. It affects dogs of all ages but my cases have all been among hounds. Can you give me any information on this condition, and advise as to how it should be handled?—W. H. B., Wis.

Reply: The outbreak described above seems to be identical with the condition baptised "Fright Disease" by our Southern colleagues and which has been very prevalent throughout some of the southern states.

The cause is not known. It has been attributed to distemper, but we do not believe this is even a good quality of guess-work, and besides we should not seek refuge for our ignorance in the harbor of mystery. "Them days is gone forever." Fright

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disease seems to be a definite entity. It has a definite cause, yet to be discovered. Epileptic states are mysterious in their origin; no one knows much about them. The newest thing we have on the subject is the report of the Rockefeller Institute which attributes them to parathyroid deficiency.

The distemper theory, the anal abscess theory, and the intestinal parasite theory are yet to be proved.

The best treatment according to those who are handling this condition in considerable numbers consists of cleaning out the bowels with two or three small doses of calomel followed with a saline, and administering elixir iron, quinin and strychnin, in teaspoonful doses three times a day after the purging ceases.

COUGH TREATMENT FOR PIGS

I would like to have a formulæ for a cheap cough preparation for pigs. Guaicol is the essential ingredient, as I understand it, but I find it too expensive. The pigs will not touch some of the preparations on account of their odor. The remedy must be given in slop or fed, as the farmers will not catch and dose individuals.

If the cresylic acid and the creosote were omitted, would this affect the curative properties?—J. H. D., Ind.

Reply by A. T. Kinsley: The purpose of prescribing is to provide a remedy that will relieve and overcome disease. In prescribing it is essential therefore to have a knowledge of the cause of the condition in question. Cough is a symptom of various conditions. Generally speaking, it is the result of irritation of the mucosa of the pharynx, larynx, trachea, bronchial tubes or bronchioles caused by animal parasites, bacteria, dust and irritating gases.

Although it may be possible that a certain drug or compound may temporarily relieve coughing, permanent relief is dependent upon removal of the cause.

It is difficult if at all possible to mask either guaicol or eucalyptus so that swine will consume them in sufficient quantities in feed to be of value. I would suggest that you try a mixture containing one pound of ammonium chlorid, four ounces of caramel and sufficient water to make one gallon. The dose should be from one-half to one ounce for each hog, given daily in the feed.

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TO PREVENT SELF-SUCKING

A simple, inexpensive device to cure cows of the habit of sucking themselves or other cows has been discovered on the farm of the Georgia College of Agriculture. A "bit," like an ordinary bridle bit, is made by placing rings in the ends of a ¼-inch pipe about 6 inches long. Ten or 12 holes are then drilled through the pipe. This bit is put in a halter or device similar to a bridle, and placed on the animal. The holes in the pipe prevent the cow from forming the necessary vacuum to draw milk from a teat. After a few trials the cow learns that she can not suck, and soon quits trying. The cow eats and ruminates normally with the "bit" in her mouth, but cannot drink water, unless the water is deep enough for her to submerge the ends of the pipe.

Comment: The publication that credits this discovery to the Georgia agricultural college is in error. The artifice is shown on page 323, of "The Art of Training and Educating the Horse," by D. Magner.—S. H. H.

SUSPECTS LEAD POISONING

Under separate cover I am sending contents taken from the stomach of a pig eight weeks old. There have been losses in this herd all summer, and all that died showed the same symptoms.

The first symptom is loss of appetite. The fatal cases die in a few hours, while the non-fatal ones linger ten days to two weeks and then gradually recover. These lie for days without moving and are very thirsty. There is marked emaciation and fetid diarrhea.

The case from which the specimen was taken was sick one day and showed nothing but a marked inflammation of the stomach. It was scouring and tucked at the flank. I suspect poisoning of some kind, possibly lead poisoning. I would appreciate an opinion.—W. A. B., Ill.

Reply: These pigs are affected with an infection of an acute type, similar to the infection that causes necrotic enteritis. The laboratory findings were negative.

A CASE OF CHRONIC TETANUS

The horse in question ran away three weeks ago and when caught was beaten over the head with a piece of telephone wire and then ridden several blocks as fast as it could run. The next day, when called to examine the horse for a stiffness that had developed, I detected all the symptoms of tetanus. The case is now three weeks

sick, does not change much, continues to eat and drink as usual but is losing flesh. I have pronounced it tetanus but do not understand why it should have contracted the disease so soon after the whipping and why it hangs on so long.—H. C., Okla.

Reply: Your diagnosis is undoubtedly correct. The only error you seem to have made is that of attributing the cause to the whipping. The horse contracted the disease from some cause antedating the whipping, and in view of its chronic character, probably 15 to 20 days before the first symptoms appeared. Tetanus cases recover in about 30 days, the duration alike in the acute and the chronic case.

IS THERE A MALE-PRODUCING AND A FEMALE-PRODUCING TESTICLE?

A purebred Angus bull, at the head of a herd of one of the best herds in Iowa was two years old when hurt on one of his testicles. The testicle enlarged to twice the normal size and when all the soreness had disappeared the enlargement was treated with Fibrosol. Since the injury he produced between 40 and 50 calves, all males. Why? W. H., Ia.

Reply: If this is the truth, the whole truth, and nothing but the truth, it would be hard to pass off as a mere coincidence, although the theory that one testicle produces females and the other males was exploded long ago. The fact, however, that sex control has never been accomplished experimentally and remains as deep a mystery as ever would justify no one to unequivocally affirm that there is no relation between the injury of this bull's testicle and the 50 males he produced consecutively. The mysteries of internal secretions are things to be thought of in this connection.

A CURE FOR BLUES

I was sitting in my office this morning "kinda" blue. This time of the year business has the habit of getting rather slow and I did not know how I was ever going to pay for my subscription, when along came a friend with a basket and said, "Doc, I brought you some sympathy." On opening the basket I found it contained a big, fat, juicy Canvas Back and two Mallard ducks, four croppies, and away down at the bottom a quart of corn licker. Tomorrow I will be 51 years old. What a birthday I will have! Here's to ye, and your old four dollars!—Incog., Ill.

Dr. D. Hanchett, of North English, Iowa, has sold his practice to Dr. D. H. Herberich, of Lone Tree.

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PRACTITIONERS' ILLS

(Continued from Page 250)

To review briefly let me say that in 1900 the practice act was passed. Under this law the practitioner prospered, and practice made a good healthy growth. He was optimistic. He believed his profession had a bright future. In 1912 a set of politicians disguised as exponents of the agricultural interest, impressed on our legislature that the veterinary practitioner was enjoying more prosperity than was good for him, and framed legislation accordingly, so in the spring of 1913 we had thrust on us the serum and virus law taking the administration of hog cholera serum and virus out of veterinary practice; taking its control away from the board of veterinary examiners and placed the same under the control of the director of the state serum laboratory at Ames, where veterinarians and laymen alike must pass a suitable exam before permit could be issued. This law was amended from one legislature to another until the 39th General Assembly gave us our infamous senate file No. 448. Section 24 of this law makes it a felony punishable by a double penalty for a regularly licensed veterinarian to charge a profit on serum and virus no matter how large or how small, unless the same be made known to the customer in writing at his request. Contrast this if you please with Section Six, Article One of the Constitution of Iowa: this reads as follows:

"All laws of a general nature shall have uniform operation." "The General Assembly shall not grant to any citizen or class of citizens privileges or immunities, which on the same terms shall not equally belong to all citizens."

Hog Cholera a Disease, Not a Religion

Now, let me ask you in all fairness, where in this good state is any citizen or class of citizens prohibited by law from charging a profit on a legitimate article of commerce, under penalty of being adjudged a felon? Just imagine for an instant that if these restrictions were imposed on all commodities to all citizens what a commercial chaos we would have. It must be brought home to the politicians, and agricultural interests alike, that the control of hog cholera is not a religious belief or a political doctrine, but is a scientific procedure in which the most careful practitioner is still beset with pitfalls due to complications with diseases other than hog cholera, that are as yet little understood. It has been Iowa's misfortune to have let a political clan attempt, by coercive legislation, to subjugate the practitioner to do their bidding. Iowa's greatest loss in this

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This outfit consists of the illuminator pictured above which throws a brilliant cone of light directly forward, making it ideal for illuminating the vagina of the sow. The instrument is 7 inches in length and will therefore reach back of the pelvic arch of any sow. The operator finds that he is enabled to see clearly any fetus caught back of the pelvis, and to hold the vaginal membranes away so a forcep may be attached to the fetus firmly and exactly without damage to the sow. A short toothed vulsellum forcep for live pigs and a long toothed one for dead ones, is recommended as best for use with this outfit.

The instrument is electrically lighted from the current of a small portable battery 15½x8½x6¾ inches, which may be readily carried anywhere. Six-foot cords are supplied with it so the operator has ample room to work.

Difficult, tedious cases become simple and easy to handle. Every veterinarian who uses this outfit this Spring is destined to win an enviable reputation in this kind of work, besides saving himself much time and trouble. Order one today under our famous "Satisfaction or Money Refunded" policy.

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- Ophthalmic
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  - In Liquid Form

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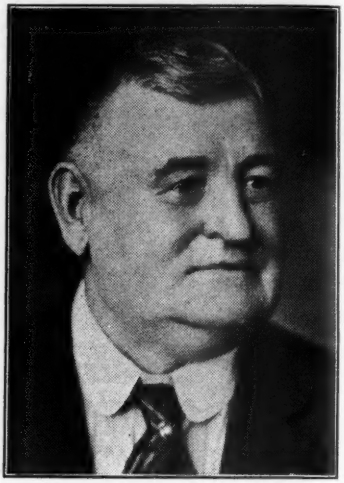

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direction has been the discouragement of the average practitioner from taking an interest in further research, feeling that if he is to be robbed of the fruits of his labor by legislative acts, there is no incentive for him to labor.

Deplores Attitude of Agricultural Press

The agricultural press has maintained an attitude that has not been encouraging to the practitioner. In too many editorials has he been pictured as a sort of a vulture or parasite that the stockman was forced to support. Picturing him in the role of a grafter, getting the stockman's money without value received rather than in his true calling of building a substantial foundation for future progressive animal husbandry, they lose sight of the fact that every control of animal disease must have its beginning with the practitioner in the barn yard.

Abolish the Practitioner and You Have Abolished Disease Control

The work of salaried state and federal men both laymen and veterinarians is given much publicity by both the agricultural and daily press. In no small per cent of instances, either by direct statement or by implication, they let it be known that the conditions met were beyond the capabilities of the local practitioner. To belittle the local practitioner in the eyes of the public seems to be their object.

Says Farm Bureau Is a Political Organization

This is a political organization who sought to own the practitioner of Iowa, body and soul. Failing to accomplish this, they turned to the 39th General Assembly and gave us "senate file No. 446"—a disgrace upon the constitution.

It would be idle chatter to assume that every man holding a diploma from a veterinary school was honest, capable, upright and sincere in his dealings with his fellow men. We have men among us who are a discredit to the profession. Unfortunately, we also have men who have brought disgrace upon their profession by dishonest dealings, fake testing, etc. Veterinarians, as a whole, are no more perfect than are lawyers, physicians, or engineers, but our percentage of "lame ducks" is probably no greater or less than that of other professions.

Plans Line of Action

First, we must set our own house in order, and make sure that we come to be judged with clean hands. Let us conduct our business on the principles laid down by Judge E. H. Gary of U. S. Steel fame. "By having a general determination to render a full equivalent for what we demand and receive."

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Then, let us have the rule of reason to be our true standard. And let it be at all times the guiding sign in all of our endeavors. Let it ever be remembered that outrages by clique or clan upon the public will be answered by outrages by the public upon clique or clan. No sane government can permit any one faction or class to prey upon another faction or class to the extent of being a detriment to that political unit as a whole.

The State of Iowa cannot afford to allow farm bureau politicians who failed to subjugate the Iowa practitioner to do their bidding, to so cripple veterinary service to the average quarter section farmer that it is not within reasonable calling distance for his ordinary wants. A service for which there is a wholesome demand, so crippled, is a liability to the national wealth and a depreciation to every dollar invested in an agricultural state.

The prospects of filling the ranks with new graduates has not improved in the last year. It can be seen from this that new graduates will be few within the next four years.

In conclusion, let me say, that unless Iowa's legislature "about faces" on its veterinary legislation by enacting constructive, rather than destructive measures, there is going to be a shortage of practitioners in a good many localities.

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Dark Barred Rocks—Heavy Meat and Laying Chicken. Price, $4.00 per setting.

S C Rhode Island Reds—Red to the skin—Price, $3.50 per setting.

S C White Leghorns—285 egg strain—Price, $2.25 per setting.

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Dr. G. P. McCue, Aberdeen, S. D., has returne home after a vacation of six weeks, two of whic were spent at the post-graduate course of the In diana Veterinary College.

The Visalia (Cal.) Times reports that Dr E. E. Pouppirt, a Tulare, California, veterin arian, has been sued for $10,875.00 for havin sold the plaintiff of the suit 14 head of dair cows that were affected with tuberculosis.

Dr. Lloyd Freidline is the commanding office of the 113th veterinary company of the Indian National guard, the only company of its kind t have completed a working organization.

Dr. E. I. Cheely, a captain in the veterinar corps, A. E. F., who only recently returned fro abroad, has located permanently as a practitione at Santa Clara, California. Dr. Cheely is a grad ute of the veterinary division of the Washingt State College.

Dr. and Mrs. F. H. Burt, of Chenoa, Illinoi are touring California by auto, playing gol paying their respects to veterinarians, and hav ing a general good time. Dr. Burt reports th morale of California veterinarians is hig higher than that of his Corn Belt colleagues.

The Tri-County Veterinary Medical Assoc ation was organized at Springfield, Illinoi January 17. A. E. Dickerson, Springfield, wa elected president; A. C. Bolle, Jacksonvill vice-president; and C. C. Hastings, Williams ville, secretary-treasurer. By merging wit the Sangamon county association this organ zation becomes one of the strongest of th local associations, being located in one of th thickly populated veterinary centers of tha state.

MEMORIAL CEREMONY TO DR. LEWI

A memorial ceremony in commemoration o the late Dr. L. L. Lewis was recently held by th Oklahoma Veterinary Medical Association, i which the deceased was eulogized as a gre friend and co-worker. Dr. Lewis died on Se tember 26, 1922, at his home in Stillwater, Okl homa. He was born in Tennessee 53 years ag received the degree of Doctor of Veterinary Me icine at the Iowa State College, in 1894, an served as professor of veterinary science at th Oklahoma A. & M. College for 26 years.

MISSOURI VALLEY ASSOCIATION NOT A DEAD ONE

Contrary to the expectations of many, the old association that has played such an important part in the development of veterinary practice in the Middle West is very much alive. The meeting held at St. Joseph, Missouri, on February 13-14-15 was a success from every count. There was harmony and enthusiasm aplenty, an attendance that was surprising, and a program the like of which has seldom been equalled. The sessions were all well attended, sometimes crowded; and the discussions were of the kind that have always distinguished the Missouri Valley from the other associations. They were at once interesting, instructive, entertaining, and numerous. The program was free from chaff. All the papers were of great worth for the practitioner, and at the same time classical, expelling a prevailing idea that contributions cannot be both scientific and practical. The contributions of Steel, Guard, Embree, Juhl, Shigley and Warmoth are worthy of special mention in this connection; and the question box conducted by Kinsley yielded a fund of workable information on a variety of subjects of local and current importance that was loudly applauded.

The entertainment features were ample and of a high order. The local committee made the best of its opportunities, assisted by Dr. R. D. Gilles, of the United States bureau of animal industry and Dr. W. J. Embree of the Western Weighing and Inspection Bureau, and left no regrets behind. Especial credit, however, must go out to President Treman for having taken the association in hand during trying times and to have planned and conducted a meeting that goes down in the history of the association as an eminently successful one. Secretary Bourne was absent on account of illness.

A year ago the Missouri Valley was threatened with disintegration, through having attempted to discipline some of its members who, many of the membership feel, have fallen from grace; today it seems stronger than ever in its determination to stand on the principles that have been the rule and guide of its faith since the beginning.

No! The Missouri Valley association is not dead. It is very much alive. It does not need a mortician. It can even dismiss the attending physician.

Dr. H. B. McDowell, Middleton, Delaware, is a member of the state legislature of that state, representing the seventh senatorial district.

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KANSAS CITY KANSAS

Dr. L. G. Pottle, Quincy, Illinois, is mentioned as a promising candidate for mayor of that city on the Republican ticket.

Dr. W. D. Gilchrist, of Jefferson, will move to Grinnell to take up the practice left by his late brother.

Dr. Thos. B. Fell, veterinary inspector of the bureau of animal industry at Seattle, Wash., has been transferred to Boston, Mass.

Dr. A. J. Schroeder, formerly of Eldridge, Iowa, has been appointed county veterinarian for Scott county, Iowa, with headquarters at Davenport.

Dr. J. H. Moore of Santa Barbara, California, has just completed the construction of a fine dog and cat hospital in that city. "It is of Spanish style in architecture and is declared to be scientifically correct in arrangement as to wards, laboratories and runs."

Dr. K. L. McKenzie, Northfield, and Dr. M. R. Higbee, Albert Lea, were appointed representatives to the Agricultural Society by the Minnesota State Veterinary Medical Association at its recent meeting in Minneapolis.

Dr. A. T. Kinsley, associate editor of VETERINARY MEDICINE, addressed the Minnesota Veterinary Medical Association on Diseases of Swine at its recent annual meeting in Minneapolis.

Dr. W. H. Welch, president of the American Veterinary Medical Association, spoke on the Horse Industry of America before the Minnesota Veterinary Medical Association at its recent meeting in Minneapolis.

Dr. S. F. Loffer has been appointed county veterinarian of Imperial County, California. Dr. Loffer was formerly an instructor at the Iowa Agricultural College.

Dr. L. F. Brown, of Galesburg, one of the leaders of the veterinary profession of Illinois, has recently purchased a large barn, formerly used as a sales stable for fancy horses, for the purpose of changing it into a veterinary hospital, to meet the coming back of the horse in Central Illinois.

Dr. C. T. Old, Sikeston, Missouri, is the proud father of a new son. Everything is reported fine at the Old Homestead.

Dr. Geo. E. Evenson, formerly of Melrose, Wisconsin, is now located in West Salem, Wisconsin.

Dr. J. W. Stehouwer has moved to Hull, Iowa, He was formerly located at Prairie City, Iowa.

Dr. Howard Powers has moved to Hankinson, North Dakota. Doctor Powers formerly practiced at Enderlin, N. Dak.

Dr. C. M. Gilchrist, Ames '14, died at his home in Grinnell, Iowa, December 31, 1922, following an operation for appendicitis.

Doctor Gilchrist was a member of the Veterinary Corps, A. E. F., served twenty-seven months overseas with the First Division, and reached the grade of Captain. Since his discharge from the army, he practiced at Grinnell, where he was a member of Focht-Tennant Post, Number 53, of the American Legion.

Dr. H. S. Ijichi, Kagoshima, Japan, sends Christmas greetings to his American colleagues. Dr. Ijichi graduated from the Chicago Veterinary College, class of 1920. Christmas greetings arrive late when mailed in Japan Christmas morning.

Dr. G. A. Roberts, Raleigh, North Carolina, has returned to Brazil to teach veterinary science in the agricultural school at Lavras, Minas, and to do experimental work for that institution.

Dr. Roberts sailed for Brazil January 20, accompanied by Mrs. Roberts.

"CAPS" OR LOWER CASE HELL?

Drs. J. S. Potter and Henry Hell, two well-known Iowa practitioners, both middle aged and about the same weight, are often seen together at veterinary meetings. At the recent annual convention held at Des Moines a mutual friend greeted Potter with a hearty, "Hello, Hell!" "Don't call me 'hell'," came back Potter defiantly. "But, but," stuttered the friend staggering under the awful mistake. "You look like H(h)ell."

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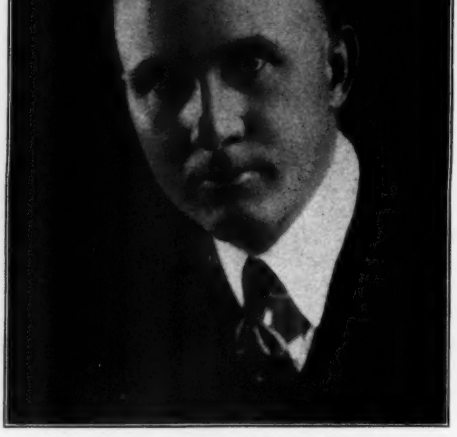
Colorado Veterinary Medical Association

The twentieth annual meeting of the Colorado Veterinary Medical Association, held in Denver, January 17 and 18, 1923, both in point of attendance and interest exhibited augurs well for the future of the profession in that state.

The report of the legislative committee was of special interest because the legislature was then in session. Dr. Chas. C. Lamb, chairman of that committee, reported that a bill for the continuation of co-operation of the state with the federal bureau of animal industry in the eradication of tuberculosis had been presented. This bill provides new features that special provision be made of area work. The bill asked for an appropriation of $75,000. Dr. Lamb also announced that a bill had been introduced, providing for abolishing the state board of veterinary examiners. This bill was the outgrowth of a fight between an unlicensed practitioner and the state board, which has been carried on for several years. It does not seem probable at this time that it can receive an serious consideration at the hands of the legislature.



DR. C. C. STEWART, President, Colorado Veterinary Medical Ass'n.

The election of officers resulted as follows: C. C. Stewart, Blake, first vice-president; F. F. Mendenhall, second vice-president; I. E. Newsom, secretary-treasurer; executive committee: W. B. McGuire, A. G. Wadleigh, Geo. H. Carr.

Awns Cause Fatal Pneumonia

Dr. Geo. W. Stiles, Jr., pathologist for the B. A. I. at Denver, read a paper in which he discussed the "Awns of Grasses as a Source of Loss in Livestock." He described particularly the three awned grass, and some damages which it had caused in sheep, cattle and mules. He stated that not only did these awns get into the mouth, interfering with mastication, in the eyes, interfering with sight and in the skin, but he also found the awns in the lungs, which he said set up fatal pneumonia.

Hemorrhagic Septicemia Attacks Only Lambs

Dr. Floyd Cross, assistant pathologist at the Colorado experiment station, discussed some of the losses in feeding lambs, which had engaged the attention of the station. He described a typical outbreak of hemorrhagic septicemia in which the bipolar organism was isolated from 32 out of 34 sheep examined. He went on to state that hemorrhagic septicemia usually appeared within the first two weeks after the lambs were placed in the lots, and that any outbreak of disease coming at a later period was most probably due to some other condition.

Deaths From Overeating Corn

He stated that in the district around Ft. Collins, where about a million sheep are fed each winter, the chief loss during the past year was due to overeating of corn, these losses usually appearing well along in the feeding period and when the animals were getting from a pound to a pound and a half of corn. On reduction of the grain ration these losses were easitly controlled, but it proved difficult to fatten the lambs in the time desired, and still keep free from death loss.

Lamb Scour and Pneumonia

He also outlined two other diseases which had caused considerable trouble, and for which no adequate cause had been discovered. These were a profuse scouring, seen sometimes when lambs were first brought in and a pneumonia from which the bipolar organism could not be isolated.

Intradermal Test Discussed

"Interpretation of the Intrademal Test" was

discussed by Dr. E. N. Stout, who has been doing the accredited herd work for the B. A. I. within the state. Dr. Stout described the needle which he uses, and also the method of administration of the tuberculin. He said that any circumscribed hard nodule above "pea-size" was quite certain to indicate a positive reaction. There were, however, certain diffuse swellings of doughy-like consistency that proved somewhat troublesome. It sometimes occurred that while no considerable swelling could be determined by palpation, yet on examination of the two folds, the injected one would be found somewhat thicker than the other. Generally speaking, he thought these should be considered negative reactions. He found that such reactions were more common when it was necessary to make more than one puncture with the needle.

A resumé of the last meeting of the U. S. Livestock Sanitary Association was given by Dr. Geo. H. Glover, and case reports were detailed by Drs. W. G. Blake and Geo. W. Dickey. Dickey.

Carr Promotes the Pure-Breds

Dr. Geo. H. Carr of Brighton gave a talk on the subject of "How Pure-Bred Pigs Pay." He stated that he had many clients who were unable on their own initiative to buy pure-bred pigs, but who really wanted to get into the pure-bred business. For many such it is his custom to furnish them with a sow pig and the services of one of his own boars, for which he would retain title to the pig furnished and one of each litter produced. In this way he found that he not only increased his income, through the sale of pigs, but that he greatly assisted the community in raising a better class of hogs, and also increased his own practice, because clients were much more apt to call a veterinarian for a pure bred animal than they would for a grade. It might be added that Dr. Carr has been particularly successful in aligning himself with the various breeding associations in his county, thereby increasing the pure-bred livestock of the district, and incidentally his own services to the community.

Professor Bray Advocates Minerals

Prof. C. I. Bray, associate professor of animal husbandry at the Colorado agricultural college, discussed "The Importance of Mineral Matter in Preventing Disease." This paper was an excellent presentation of the whole subject of deficiency of minerals in lessening the productivity and the resistance of the domesticated animals. He not only considered

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mineral deficiency in its relation to rickets, osteomalacia and osteoporosis, but also in its relation to pig paralysis, abortion, sterility and many other maladies. This paper was an excellent presentation of our knowledge on this new phase of animal nutrition.

Kingman Discusses the Corpus Luteum

The corpus luteum was discussed by Dr. H. E. Kingman, surgeon in the veterinary school at the Colorado agricultural college. Deviating from the usual plan, he neither read a paper nor made a talk, but gave each one present a chance to ask a question, the only limitation being that it should have some relation to the corpus luteum. The announcement that this was to be done was made some time previous to the discussion of the subject, so that each one present was prepared with his question. These questions he took up one by one and answered concisely and to the point. Altogether it seemed probable that more real information was given to the veterinarians present in this way than could have been done by the usual method, although it is realized that this method has its limitations.

Abortion Disease Presented by Newsom

Dr. I. E. Newsom, pathologist at the Colorado experiment station, summarized the recent work on contagious abortion, particularly in its relation to control of the disease on the range. He discussed the experiments which the station has under way, with a view to controlling abortion in range animals. The two chief factors which were emphasized were the isolation of heifers, particularly during the winter time when on feed, and the use of a live organism vaccine, preferably on those animals that had not aborted.—I. E. Newsom, Secretary-Treasurer.

The Northwestern Indiana Veterinary Association effected a permanent organization at a meeting in LaPorte, February 2. The officers elected are: Drs. E. E. Ebright, Hammond, president; E. E. Cunningham, Valparaiso, vice-president; and J. H. McLean, LaPorte, secretary-treasurer. The next meeting will be held at Valparaiso in April.

Dr. Emmett Otto, of Phoenix, was elected president of the Arizona Veterinary Medical association at the meeting held at the state capital building, January 20. Dr. E. Z. McNees, of Buckeye, was elected vice-president and Dr. D. E. Douglas, of Mesa, secretary-treasurer.

DIDN'T LOCK THE DOOR

Freeport, Ill., Jan. 30.—Cholera is wiping out many herds of hogs in West Point township, Stephenson county, according to reports received here this morning.

William Kerr lost 72 out of a herd of 80, the animals all being pure bred Poland Chinas. His monetary loss is about $2,200. Warren Fehr, another West Point farmer, lost 50 animals, Henry Jonas lost 40, Dell Butler, 80 out of a herd of 160.

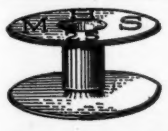
Flu also has decimated herds in West Point township and across the line in Jo Daviess county, reports indicate. Vaccination has been resorted to, but in most cases it was started too late to accomplish any good.—Freeport News.

TEXARKANA DOGS NO FOOLS
Appreciate Veterinary Service

"Bob" is the pet dog of W. N. Gowning, of the American cafe. About ten days ago he was in the kitchen, where a pot of boiling water was spilled accidentally upon his back, which was badly scalded, much of the hair being taken off.

"Bob" was taken to Dr. H. Shull's dog hospital, where first treatment was administered and later he was again taken there for more treatment. Then a few days passed during which "Bob's" owner neglected to take him. Mr. Gowing noticed, however, that "Bob" appeared to have been newly treated and upon making inquiry of Dr. Shull ascertained that the dog, on his own initiative, had made several trips alone to the hospital where he applied personally to the doctor for alleviation from pain he was suffering.—Four States-Press.

Swine plague does not produce the heavy death rate as does cholera. Even though the death rate does not compare to cholera, the losses suffered are high.



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(Continued from Page 252)

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(See page 248)

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1st Lieut. Samuel G. Kielsmeier from duty at Fort Oglethorpe, Ga., and to Fort McPherson, Ga., for duty as station veterinarian.

Dr. A. M. Strom and Miss Helen Bertelson, both of Ortonville, Minnesota, were united in marriage, January 27. Dr. Strom formerly practiced at Louisburg, Minnesota, but moved to Ortonville, in April, 1922, when he took over the practice of Dr. E. Schoen. He graduated at the Indiana Veterinary college in 1921.

Maj. Charles H. Jewell, having been examined for promotion and found physically disqualified for the duties of lieutenant colonel of the veterinary corps, by reason of disability incident to the service, his retirement from active service as a lieutenant colonel is announced, to date from January 27, 1923, the date upon which he would have been promoted to that grade by reason of length of commissioned service if found qualified.

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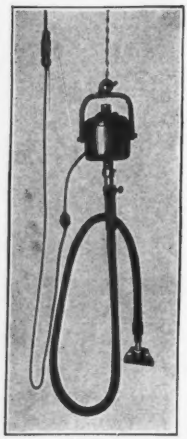

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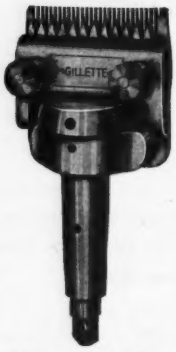

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133 West 31st Street
New York City

Dr. S. T. Miller has been appointed meat in spector for the city of Wenatchee, Washingto at a salary of $2,500 a year.

Dr. H. B. Craig, formely of Tracy, Minn has established himself at St. Peters, Minn., fo practice. Craig is a race-horse fan, a traine of light harness horses and owns two pret good ones himself. He is a graduate of M Killip's.

Dr. W. H. Haskell, of Beaumont, Texas, post commander of the Beaumont Post of th American Legion. Haskell was an overse veterinary officer, and is, so far as we kno the only veterinarian occupying that positio in the Legion.

Dr. Chas. B. Skinner has located at Ne Berlin, N. Y., where he will engage in veter nary practice.

Dr. R. LaPointe, aged 64, prominent Minneso veterinary practitioner for many years, died pneumonia at his home in St. Peter, Minn., Ja uary 21, after a brief illness of four days. H widow is the only survivor.

Mr. Jas. Gallagher, of Philadelphia, a leadi cartage operator, says he would be $50,000 bett off if he had never seen a motor truck; and th if he were given a whole fleet of motor truc and compelled to operate them, he would go bro in five years.

WHY THE EDITOR TOOK TO THE TALL TIMBERS

Mixes the Account of a Wedding with an Auction Sale

Married at the bride's residence on Thursda January 27, Miss Ethyl Trobridge by the Reve end 18 head of Shorthorns, consisting of fo bridesmaids dressed in pale blue and carryi calves. They had tulle veils.

Also 46 head of hogs, including the groom father from North Dakota where he is engage in missionary work, and is immuned by th serum and virus process. They all gathered i the spacious dining room and partook of 3 bushels of seed oats, 1000 bushels of corn, a 10 large sacks of millet and alfalfa.

The bride is the youngest daughter of o trusty incubator, capacity 600 eggs, one Jo Deere, five-room cottage, and a trip to Oma after which they will draw 10% interest fro date. Free lunch at noon.—From—we're mu